PUBLIC-PRIVATE PARTNERSHIPS: CRITICAL TO COMBATTING THE NEXT PANDEMIC INFLUENZA IN THE STATE OF KANSAS

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The Pandemic Influenza outbreak that occurred in 1918 killed over 50 million people world-wide and was responsible for more deaths than our first two world wars combined. Unlike most threats to our national security, Pandemic Influenza does not have a political or ideological motive, does not distinguish between social or economic class, nor does it require special environmental conditions to attack. According to experts across the country and throughout the world, it is only a matter of time before the next Pandemic strikes. Over 85 percent of our nation's entire critical infrastructure belongs to the private sector. As equal stakeholders in the fight against the next Pandemic, it seems obvious that our Federal, State and local governments should solicit more support from the private sector to plan, mitigate, and respond to Pandemic Influenza. This study addresses how the Federal, State (Kansas) and local governments can better solicit the support of private sector industries in support of Pandemic Influenza. This thesis will delve into the Federal, State and local plans and policies to expose capability gaps that could be filled by private sector industries. This study will address what types of industries could be enlisted to provide desperately needed resources in the event of an outbreak. Finally, this research will look at the types of incentives or instruments of power the Federal, State and local governments could utilize to better facilitate public-private partnerships.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

PUBLIC-PRIVATE PARTNERSHIPS: CRITICAL TO COMBATTING THE NEXT PANDEMIC INFLUENZA IN THE STATE OF KANSAS, by Major George O. Gilbert Jr., 112 pages.

The Pandemic Influenza outbreak that occurred in 1918 killed over 50 million people world-wide and was responsible for more deaths than our first two world wars combined. Unlike most threats to our national security, Pandemic Influenza does not have a political or ideological motive, does not distinguish between social or economic class, nor does it require special environmental conditions to attack. According to experts across the country and throughout the world, it is only a matter of time before the next Pandemic strikes. Over 85 percent of our nation‘s entire critical infrastructure belongs to the private sector. As equal stakeholders in the fight against the next Pandemic, it seems obvious that our Federal, State and local governments should solicit more support from the private sector to plan, mitigate, and respond to Pandemic Influenza. This study addresses how the Federal, State (Kansas) and local governments can better solicit the support of private sector industries in support of Pandemic Influenza. This thesis will delve into the Federal, State and local plans and policies to expose capability gaps that could be filled by private sector industries. This study will address what types of industries could be enlisted to provide desperately needed resources in the event of an outbreak. Finally, this research will look at the types of incentives or instruments of power the Federal, State and local governments could utilize to better facilitate public-private partnerships.

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TABLE OF CONTENTS

MASTER OF MILITARY ART AND SCIENCE THESIS APPROVAL PAGE iii

ABSTRACT iv

ACKNOWLEDGMENTS v

TABLE OF CONTENTS vi

ACRONYMS viii

CHAPTER 1 INTRODUCTION 1

- Significance of the Study 2
- Limitations 4
- Delimitations 5
- Summary 5

CHAPTER 2 LITERATURE REVIEW 6

- Federal 6
- State 14
- Local 15
- Laws and Regulations 15
- Other Reports, Articles, and Research 16
- Summary 17

CHAPTER 3 RESEARCH METHODOLOGY 19

- Gathering the data 20
- Reporting Experiences 21
- Interpreting the Meaning 21
- Summary and Conclusion 23

CHAPTER 4 ANALYSIS 24

- Secondary Question 1 25
  - Federal 26
  - State 38
  - Local 57
- Secondary Question 2 61
  - Federal 62
  - State and Local 66
  - Secondary Question Three 71
- Summary 77

CHAPTER 5RECOMMENDATIONS....79

Primary Research Question.... 80
Secondary Research Question One.... 83
Secondary Research Question Two.... 84
Secondary Research Question Three.... 85
Suggestions for Further Research.... 86
Recommendations.... 88

ILLUSTRATIONS....91

GLOSSARY....92

REFERENCE LIST....99

INITIAL DISTRIBUTION LIST....103

ACRONYMS

ACIP	Advisory Committee on Immunization Practices
BDCP	Bureau of Disease Control and Prevention
CDC	Centers for Disease Control and Prevention
CERC	Crisis/Emergency Risk Communications
COOP	Continuity of Operations Plan
CPHP	Center for Public Health Preparedness
DHS	U.S. Department of Homeland Security
DOH	Division of Health
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
ESF	Emergency Support Function
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
HHS	U.S. Department of Health and Human Services
HAvBED	Kansas Hospital Bed Availability System
HSEEP	Homeland Security Exercise Evaluation Program
IAL	Incident Action Level
ICP	Infection Control Professional
ICS	Incident Command System
ILI	Influenza-like illness
JIC	Joint Information Center
KBEMS	Kansas Board of Emergency Medical Services

KDEM	Kansas Division of Emergency Management
KDHE	Kansas Department of Health and Environment
KHEL	Kansas Health and Environmental Laboratories
KS-HAN	Kansas Health Alert Network
LHD	Local Health Department
LIN	Laboratory Information Network
NIMS	National Incident Management System
NRF	National Response Framework (formerly NRP)
NRP	National Response Plan
OSE	Office of Surveillance and Epidemiology
PIPC	Pandemic Influenza Preparedness Committee
PHIX	Public Health Information Exchange
PIO	Public Information Officer
PPE	Personal Protective Equipment
PSA	Public Service Announcement
SEOC	State Emergency Operations Center
SNS	Strategic National Stockpile
SOG	Standard Operating Guide
USDA	United States Department of Agriculture
USG	United States Government
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

> In September of 1918, Soldiers at an army base near Boston suddenly began to die. Doctors found the victims‘ lungs filled with fluid and strangely blue. They identified the cause of death as influenza, but it was unlike any strain ever seen. It would become the worst epidemic in American history, killing over 600,000– more than all the nation‘s combat deaths this century combined. (Kenner 1998).

Concerns have grown in the United States and around the world about the potential emergence of an influenza virus of pandemic proportions. Such concerns have prompted influenza pandemic planning and preparedness initiatives in the United States and abroad. These efforts are led at the global level by the World Health Organization and are supported by the efforts of individual countries (Knebel 2008).

Influenza pandemics are recurring natural disasters, having struck during the twentieth century in 1918, 1957, and 1968. Both the onset and the magnitude of influenza pandemics are difficult to predict. The 1918 "Spanish Flu," the deadliest pandemic in history, is estimated to have killed more than 50 million people worldwide (Knebel 2008). ~~–~~Given that the current world population is more than three times as large as that of 1918, an influenza pandemic could result in millions of deaths and bring the world as we know it to a screaming halt. Morbidity rates during past pandemics reached 25-35 percent of the total population. A similar morbidity rate in a future influenza pandemic could result in millions of Americans seeking medical care. Such a pandemic could quickly overwhelm U.S. hospitals and emergency departments” (Knebel 2008, 5).

In a world marked with conflict, famine, and poverty, the general public often overlooks influenza. As Dorothy Pettit and Janice Bailie suggested in their book, *A Cruel Wind: Pandemic Flu in America*, the general population in America considers the flu that

unwanted guest that must be endured during the winter months." But very few diseases can match the yearly fatality rates of this deadly virus. Each year influenza claims the lives of about 37,000 people in the United States and between 250,000 and 500,000 worldwide" (PBS. org 2006). Although these numbers are significant, influenza has the potential to turn into something far more lethal, because it can micro mutate into new strains. Public health officials consider influenza the most likely disease that could cause a pandemic-global epidemic" (PBS. org 2006).

Significance of the Study

The purpose of this study is three-fold. First, to gain a greater appreciation for the devastating effects of this mutating disease and develop a sense of urgency in the reader. Pandemics have occurred intermittently over centuries and the last three pandemics, in 1918, 1957 and 1968, killed approximately 50 million, 2 million and 1 million people worldwide, respectively" (Homeland Security Council 2005). An influenza pandemic has the potential to cause more death and illness than any other public health threat. If a pandemic influenza virus with similar virulence to the 1918 strain emerged today, in the absence of intervention, it is estimated that 1.9 million Americans could die, and almost 10 million could be hospitalized over the course of the pandemic, which might evolve over a year or more (Homeland Security Council 2005). One thing is certain, a more powerful virus is on the horizon, and unlike our human adversaries, is unabated by the political, economic or social dimensions of the time period. Secondly, globalization has increased our access to the developing world, thus increasing our exposure to new emerging diseases and exposing far more people worldwide. Studying the effects of this deadly virus has never been more critical.

Planning for and responding to pandemic flu is a very complex problem. This study will highlight the vast amount of resources necessary to effectively respond to a flu pandemic. Finally, this study seeks to identify opportunities in which the various levels of government can leverage private sector industry in order to augment state sponsored programs already in place.

Subordinate questions of this thesis are: What resource shortfalls (capability gaps) might we find at each level of government during a pandemic influenza outbreak? Which private sector industries could be enlisted to provide critical resources during a pandemic influenza? What types of incentives, or instruments of power might the government use in order to establish public-private partnerships in the event of a pandemic influenza outbreak?

The study will show how a large majority of the public-private agreements are established at the State and local levels. According to the 2010 U.S. Census Bureau, the United States is comprised of roughly 88,000 municipalities, 3,140 counties, and 50 states (excluding US territories, Virgin Islands, and Puerto Rico) (US Census Bureau 2010). The amount of time given to conduct this study limited the author‘s ability to gather information from every municipality in the United States. This information would be useful to the reader in order to understand the degree of involvement of government at the Federal, State and local levels and to expose those regions of the United States that are accepting risk. Further investigation into those areas of the United States that are accepting risk would be useful for emergency managers in order to develop an Emergency Operations Plan (EOP) for flu pandemic. Identifying capability gaps and

resource shortfalls provide legislators with valuable information in order to request additional support from State and Federal government.

Limitations

This study is limited in scope by the documents published by the Federal, State, and local emergency management communities. All documents are public domain; however, some material, such as information contained in After Action Reports (AAR) was masked at the discretion of the agency. In order to conserve time, the State of Kansas was chosen to provide state and local Emergency Operations Plans (EOP) and related documents supporting this study. This research does not explore the clinical and scientific aspects of Pandemic Influenza that could potentially influence the legal and statuatory conduct public-private engagements.

The results of this study will assist the reader‘s understanding of the potentially devastating effects of an Pandemic Influenza. Chapter 4 will analyze the relationship between Federal, State and local Pandemic Influenza response plans. An After Action Review (AAR) provided by the State of Kansas Department of Health and Environment (KDHE) will be used to illustrate the interplay between the levels of government during a recent Pandemic Influenza exercise. Capability gaps are clearly cited throughout the exercise‘s *AAR*. The remaining question will be, how do we resource these capability gaps? It is time that the government takes more aggressive steps to enlist the support of private industry and integrate industry leaders into the planning process. Only by involving industry professionals early in the planning process will the government be able to leverage these private partnerships to respond effectively in the event of a pandemic.

Delimitations

The research makes use of unclassified and public sources of information. The completed thesis is also unclassified with unlimited distribution.

Summary

This study will answer the question, how the U.S. Government can leverage private sector partnerships in order to respond to Pandemic Influenza. Through close examination of Federal, State, and local policies, this study will show how effectively these policies are being implemented at the State and local levels. Consequently, this thesis will identify opportunities for Federal, State and local government to engage in public-private partnerships to bridge capability gaps and address resource shortfalls. The variety of industries that could be enlisted for support during a flu pandemic are numerous and depend on many localized factors. It is important that this study addresses the motivations of these industries and the types of incentives the government could offer to ensure commitment during an actual crisis. The next chapter will examine the available literature, legislation, and existing planning documents to provide the reader with a clear understanding of the parameters in which these government entities work.

CHAPTER 2

LITERATURE REVIEW

> I had a little bird, his name was Enza. . . I opened up the window and in-flew-Enza. (Pettit and Bailie 2008)

This chapter will review current strategies, plans, and legislation published by the Federal government and the State of Kansas in order to prepare, respond and recover from Pandemic Influenza. These documents establish the parameters, both legal and statutory, in which each level of government must operate in the event of an outbreak. A scan of these documents will illustrate the unique nature of this public health problem, and will highlight the government‘s growing concern over our nation‘s ability to combat this lethal threat in the future. The vast amount of resources necessary to mitigate, prepare, respond and recover from Pandemic Influenza are shocking, and it is expected that the resources at the local level will be overwhelmed in a very short period of time, thus demanding external support from either the public or private sectors. The documents included in chapter 2 will establish the context in which the Federal, State and local emergency managers and public health officials draft their Pandemic Influenza response plans.

Federal

There are many documents addressing Pandemic Influenza at the Federal level. The principle documents include: the *President's National Strategy for Homeland Security* (2007); the *Quadrennial Homeland Security Review Report* (2010); the *National Preparedness Guidelines*; the *National Response Framework (NRP)* (2008); the *National Strategy for Pandemic Influenza* (2005); the *Homeland Security Council's (HSC)*

Pandemic Influenza Implementation Plan (2006); the *Department of Health and Human Services' (HHS) Pandemic Influenza Strategy* (2008); and finally, the *Department of Homeland Security's (HLS) Pandemic Influenza Guide for Critical Infrastructure and Key Resources* (2009). The fact that Pandemic Influenza is briefly mentioned in the *National Strategy for Homeland Security and the Quadrennial Homeland Security Review Report* demonstrates that the Federal government classifies Pandemic Influenza as a national security issue, e.g., same degree of emphasis as nuclear and biological agents.

The *National Strategy for Homeland Security* is a "guide, [designed to] organize, and unify our Nation's homeland security efforts" (Homeland Security Council 2005). So what does Homeland Security have to do with Pandemic Influenza? According to the *National Strategy for Homeland Security*, "We must reduce the vulnerability of the American populace to intentional dissemination of harmful biological agents, detonation of a nuclear or radiological device, the intentional or accidental release of toxic chemicals, naturally occurring infectious disease such as an influenza pandemic, and meteorological or geolocial events such as hurricanes or earthquakes" (Homeland Security Council 2005). This document is important for a couple of reaons. First, it places Pandemic Influenza in the same category as Weapons of Mass Destruction (WMD). Most of the American population, including members of Congress, understand the devastating effects of a weapon included in this category, not to mention that the term "WMD" has itself emotional underpinnings. By placing Pandemic Influenza in the same category as other weapons of mass destruction, it can be inferred that the Federal Government should

commit the same resources to combat Pandemic Influenza as it does to prepare for a nuclear or biological attack.

Secondly, the *National Strategy for Homeland Security* emphasizes the importance of a national effort, "with shared goals and responsibilities for protecting and defending the Homeland" (The White House 2007b, 4). "Our Strategy leverages the unique strengths and capabilities of all levels of government, the private and non-profit sectors, communities, and individual citizens" (The White House 2007b, 4). This document clearly states the need to develop public-private sector partnerships in order to leverage the vast amount of resources they can provide.

The *National Strategy for Pandemic Influenza Implementation Plan* is a follow-up document to the *National Strategy for Pandemic Influenza*. This plan proposes actions across the Federal Government in support of the Strategy, and describes expectations of non-Federal entities, including State, local, and tribal governments, the private sector, international partners, and individuals. The *National Strategy for Pandemic Influenza Implementation Plan* states, "While the Strategy is built upon pillars (preparedness, surveillance, response), this plan segregates action on a functional basis (international efforts, transportation and borders, human health, animal health)" (The White House 2006a, vii). Additionally, the plan addresses crosscutting issues such as economic issues and the relevant legal authorities in each of the functional areas. Furthermore, it identifies the actions the Federal Government is committed to in order to prepare for the next pandemic, such as achieving National goals for production and stockpiling of vaccines and antiviral medications, prioritizing and distributing limited supplies of vaccines and antiviral medications, deploying limited Federal assets and resources to support local

medical surge, establishing real-time clinical surveillance, and improving modeling to inform decision making and public health interventions. The plan provides guidance for organizations and businesses in order to ―ensure preparedness and the communication of roles and responsibilities related to continuity planning and protection of personnel" (The White House 2006a, 1). It acknowledges that ―the private sector will play an integral role in a community response to Pandemic Influenza by protecting employees' and customers' health and safety, and mitigating impact to the economy and the functioning of society" (The White House 2006a, 4). Finally, the plan provides a ―playbook" and algorithm that the Federal Government will follow in its response to a pandemic.

The *Department of Homeland Security's (HLS) Pandemic Influenza Guide for Critical Infrastructure and Key Resources* (2009) devotes an entire section to partnerships and information sharing. Of all the documents presented in this study, the *Pandemic Guide for CI/KR* is the most exhaustive in terms of formulating a strategy for establishing public-private partnerships in response to Pandemic Influenza. The document recognizes that, ―a public-private partnership across all levels of government and the private sector is critical to preparing for and responding to all types of catastrophic events" (Department of Homeland Security 2006, 6). A key section of this document discusses information sharing between the government and private sector. In order to facilitate this process, the DHS established the National Operations Center (NOC) which serves as the Nation's hub for domestic incident management operational coordination and situational awareness. The National Infrastructure Coordinating Center (NICC), one of four sub-elements of the NOC, facilitates the passing of information between CI/KR sector businesses and the NOC. The NICC is a ―24/7" watch operations

center and provides a ―centralized mechanism and process for information sharing and coordination between the government and other industry partners" (Department of Homeland Security 2006, 65). DHS plans to use the NICC as the hub for all CI/KR private sector information sharing needs during all phases of a pandemic.

DHS has designed the Sector Partnership Framework, which is ―build on an unprecedented level of public-private cooperation" (Department of Homeland Security 2006, 67). While DHS is responsible for the critical infrastructure program, ―implementation requires an integrated process among all key stakeholders, including the private sector" (Department of Homeland Security 2006, 66). Success of the Sector Partnership Framework centers around sector specific councils to develop an entire range of infrastructure protection activities and issues, including information sharing within a sector. According to the National Infrastructure Protection Plan (NIPP), ―the framework envisions these councils as the mechanisms for information exchange in matters relating to critical infrastructure protection (CIP) across 17 critical sectors" (Department of Homeland Security 2009, 25). These councils will serve as a venue for private sector industries to voice their conerns to the Federal Government; thus, influencing policy and better facilitating public-private partnerships.

―The purpose of the first-ever *Quadrennial Homeland Security Review Report (QHSR)* is to outline the strategic framework to guide the activities of participants in Homeland Security toward a common end" (Department of Homeland Security 2010a, vii). The *QHSR* acknowledges existing relationships, roles, and responsibilities and seeks to set forth a ―shared vision of of Homeland Security in order to achieve unity of pupose" (Department of Homeland Security 2010a,vii). Similar to the *National Strategy for*

Homeland Security, this document places Pandemic Influenza in the same category as WMD, Al-Qaida, wide scale cyber attacks, transnational crime, and terrorism. The *QHSR* also states that "these missions are enterprise-wide and not limited to the [federal government] (Department of Homeland Security 2010a, ix). People from across the Federal government, State, local, tribal, and territorial governments, the private sector, and other nongovernmental organizations are responsible for executing these missions" (Department of Homeland Security 2010a, ix). This Federal document highlights the need to leverage the capabilities of the private sector, thus reinforcing the significance of this study.

On December 17, 2003, the President issued Homeland Security Presidential Directive (HSPD)-8: "[that] established national policies to strengthen the preparedness of the United States to prevent, protect against, respond to, and recover from threatened or actual terrorist attacks, major disasters, and other emergencies within the United States" (FEMA: Homeland Security Directives 2011). The *National Preparedness Guidelines* were a by-product of HSPD-8, and its vision states that a "nation prepared with coordinated capabilities to prevent, protect against, respond to, and recover from all hazards in a way that balances risk with resources and need" (Department of Homeland Security 2011c). It further recognizes that preparedness requires a coordinated national effort involving "every level of government, as well as the private sector, non-governmental organizations, and individual citizens" (Department of Homeland Security 2011c). Additionally, these guidelines address the challenges that government officials face working with the private sector, non-governmental organizations, and individual citizens, and recommends better ways to build capabilities for bolstering preparedness.

The ―best way" will vary across the Nation. In order to assist officials in that effort, the *Guidelines* establish a Capabilities-Based Preparedness process and three planning tools: the National Planning Scenarios; the Target Capabilities List (TCL); and the Universal Task List (UTL).

―The National Planning Scenarios are designed to identify the broad spectrum of tasks and capabilities needed for all-hazards preparedness. The TCL is a comprehensive catalog of capabilities to perform Homeland Security missions, including performance measures and metrics for common tasks. The UTL is a library and hierarchy of tasks by Homeland Security mission area" (Department of Homeland Security 2011c). *The National Preparedness Guidelines* were established using a capabilities based approach, and although it mandates minimum guidelines for all jurisdictions, it takes into account the disparity of resources among them. Most important for this study, the *National Guidelines for Preparedness* prioritizes the multitude of potential threats, whether natural or man-made, and encourages collaboration between Federal, State and local authorities.

According to DHS, the ―*National Response Framework (NRF)* is the primary mechanism for coordination of the Federal Government's response to Incidents of National Significance, and will guide the Federal pandemic response" (FEMA: National Response Framework (NRF) Resource Center 2011). The National Response Framework (NRF), ―is built upon scalable, flexible, and adaptable coordinating structures to align key roles and responsibilities across the Nation" (FEMA: National Response Framework (NRF) Resource Center 2011). It identifies ―specific authorities and best practices for managing incidents that range from serious but purely local, to large-scale terrorists or catastrophic natural disasters" (FEMA: National Response Framework (NRF) Resource

Center 2011). The NRF builds upon the National Incident Management System (NIMS), which "provides a consistent template for managing incidents" (FEMA: National Response Framework (NRF) Resource Center 2011). As stated in the NRF, the "framework commits the Federal Government, in partnership with local, tribal, and State governments and the private sector, to complete both strategic and operational plans for the incident scenarios specified in the *National Preparedness Guidelines*" (FEMA: National Response Framework (NRF) Resource Center 2011) The *National Preparedness Guidelines* includes a planning scenario for Pandemic Influenza.

The National Strategy for Pandemic Influenza is a document that broadly outlines the coordinated Federal Government efforts to prevent and prepare for avian and Pandemic Influenza. Most importantly, the *National Strategy for Pandemic Influenza* assigns responsibility for medical response to HHS and overall domestic incident management to HLS. The U.S. Department of Agriculture (USDA) and the U.S. Department of State (DOS) were also assigned lead responsibilities, however, for the purposes of this study, only HHS and HLS provide information germane to the subject of this thesis (Homeland Security Council 2005).

The *HHS Pandemic Influenza Plan* is "a blueprint for Pandemic Influenza preparation and response" and provides guidance to Federal, State, and local policy makers and health departments (Homeland Security Council 2005). The HHS plan is divided into three parts: strategy, guidance to State and local partners, and HHS operational plans (which is still in development). The HHS plan makes no excuse for the nation's lack of resources, however, there is a discussion of initiatives by the department to address these shortfalls, including enlisting the support of private industry.

State

For purposes of this study, the *State of Kansas Pandemic Influenza Response Plan* was selected for further investigation. If a new and severe strain of Influenza A virus were to begin spreading around the world, Kansas would not be spared from its impact. It has been estimated that a medium-level pandemic could cause, in Kansas alone: 2,500 deaths, 5,000 hospitalizations, 500,000 outpatient visits, and 1 million cases of illness (Kansas Department of Health and Environment 2009).

Kansas relies on both public and private sector industries to support its medical and public health services - Emergency Support Function (ESF) 8 response plans. *Kansas' Pandemic Influenza Preparedness and Response Plan v. 2.0*, published in January 2009, is a 64-page document that is well-nested with the *HHS Pandemic Influenza Plan*. The plan is organized according to the World Health Organization's (WHO) pandemic phases and corresponding U.S. Government stages and CDC intervals, which make this document an excellent resource to illustrate the linkage between Federal and State policies.

Other documents provided by the Kansas Department of Health and Environment (KDHE) include an *After Action Report (AAR)/Improvement Plan* from an exercise conducted in May of 2009, and the *Antiviral Dispensing Plan for the State of Kansas.* Collectively, these documents provide valuable information regarding State and local responsibilities in terms of preparing, responding and recovering from Pandemic Influenza outbreak. The *AAR* alone exposes capability gaps and inefficiencies that suggest external support is critical, hence the need to establish public-private partnerships.

Local

A fundamental principle of emergency management and disaster response is that emergencies will be handled at the lowest level possible, that is, within the capabilities of the local authorities to handle the event. Since the State of Kansas was chosen as the primary focus of State level activity for this study, it is only appropriate that local Kansas communities be further investigated. A close look at local *Emergency Operations Plans (EOP)* and MOUs/MOAs should demonstrate how well local plans are nested with State and Federal plans and guidelines. The counties in Kansas providing information for this study include Douglas County (population: 110,826), Johnson County (population: 544,179) and Miami County (population: 30,969).

Laws and Regulations

Numerous Federal and State laws authorize relevant public health actions to address Pandemic Influenza. Knowledge of these authorities is essential for planning and implementing an effective response to an influenza pandemic. Certainly, any public-private sector engagement would be subject to the restrictions of these laws. Section 319(a) of the *Public Health Service (PHS) Act (42 U.S.C. 247d)*, authorizes the HHS Secretary to declare a public health emergency and "take such action as may be appropriate to respond" to that emergency consistent with existing authorities (Department of Health and Human Services 2010). Appropriate action may include, ―making grants, providing awards for expenses, entering into contracts, and conducting and supporting investigation into the cause, treatment, or prevention of the disease or disorder that presents the emergency" (Department of Health and Human Services 2010). The Secretary's declaration may include ―emergency use of unapproved products or

approved products for unapproved uses under section 564 of the *Food, Drug, and Cosmetic Act (21 U.S.C. 360bbb-3)*, or waiving certain regulatory requirements of the Department, such as select agents requirements, or—when the President also declares an emergency—waiving certain Medicare, Medicaid, and State Children's Health Insurance Program (SCHIP) provisions" (Department of Health and Human Services 2010).

Under the *Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.)*, ~~t~~he Federal Emergency Management Agency (FEMA), Department of Homeland Security, is authorized to coordinate the activities of Federal agencies in response to a Presidential declaration of a major disaster or emergency, with HHS having the lead for health and medical services" (Department of Health and Human Services 2010). The President may also declare an emergency under the *National Emergencies Act (50 U.S.C. 1601 et seq.).* Both Federal and State regulations may apply to specific interventions that would be implemented to control a pandemic. Although these laws and provisions provide some latitude for government agencies to engage private sector support, they focused primarily on the third phase of an emergency management ~~r~~esponse." In chapter 4, this study will examine the possibility of making funds available in order to take preemptive measures (e.g. provide funding to establish public-private partnerships before a pandemic occurs).

Other Reports, Articles, and Research

Since the events of September 2001 and Hurricane Katrina, there have been countless Congressional reports, studies, and articles generated by public officials, think tanks, and committees calling for greater public-private collaboration. A common trend with this body of work is that it is very broad in scope, that is, it covers all-hazards and

not specifically Pandemic Influenza. These documents are still important for this study because they demonstrate that there is a greater need for increased collaboration between public and private industry. Furthermore, these documents provide valuable recommendations that can be easily applied to local Pandemic Influenza response plans. The National Academy of the Sciences recently published a book entitled *Building Community Disaster Resilience Through Private-Public Collaboration* (February 2011). Not only was this book timely for this study, but it also provides the most exhaustive research to date on the subject, although its Chairman, William Hooke, states, ―this report should be considered an initial exploration on the subject–not the final definitive word [and] despite growing ad hoc experience across the country, there is currently no comprehensive framework to guide private–public collaboration focused on disaster preparedness, response, and recovery" (National Research Council 2011). This thesis will highlight some of the most recent findings and recommendations included in *Building Community Disaster Resilience Through Private-Public Collaboration*.

Summary

The body of information examined in chapter 2 provides a substantial amount of information necessary to conduct this study. Close examination of the strategies and plans formed at the Federal, State and local levels immediately indicate that resource shortfalls exist at all levels of government to effectively respond to Pandemic Influenza. This study will further examine in chapter 4 how private-public collaboration is critical in order to provide the necessary resources to address these shortfalls in a timely and efficient manner. The body of information indicate that there is a growing demand for public-private collaboration in order to ensure a comprehensive approach to the problem

from all four phases of the emergency management plan–mitigation, preparedness, response and recovery. This study will demonstrate that private industry has a role providing support in all phases of the emergency management process. Early detection and containment are essential to defeating the spread and mortality of a pandemic. This study will show that integrating the private sector into pandemic planning during the inter-pandemic period is critical to reducing the loss of life and economic damages caused by Pandemic Influenza.

The Federal and State governments must provide the means to facilitate public-private partnerships before the next Pandemic Influenza. Increased funding aimed at improving surveillance and distribution of vaccines and anti-virals tops a long list of objectives, however, education programs targeting our private sector partners and making them equal stakeholders in this fight against Pandemic Influenza are equally important. Finally, there is a growing demand from the private sector to relax some of the statuatory laws that often impede private engagement.

The next chapter will discuss the research methodology used to sponse plans to Pandemic Influenza will show significant shortfalls that will mostfurther examine this topic in depth. A close examination of Federal, State and local re certainly require the support of private sector industries.

CHAPTER 3

RESEARCH METHODOLOGY

The research methodology used for this thesis follows Creswell's Narrative Research approach through documentation review (Creswell 2007). Creswell states, "[This] method begins with the experiences as expressed in the lived and told stories of individuals" (Creswell 2007, 56). In this study, the "individuals" are represented by the various agencies of the Federal, State and local governments (e.g. DHS, HHS, KDHE, etc.) responsible for planning and responding to Pandemic Influenza. Their "stories" are expressed through the various strategies and response plans they endorse. Similarly, the "procedures for implementing this research consist of focusing on studying one or two [agencies], gathering data through the collection of their [strategies and plans], reporting [agency] experiences, and [interpreting] the meaning of those experiences" (Creswell 2007, 56). This type of research method requires "extensive information," according to Creswell, and requires a "clear understanding of the context of the [agency]" (Creswell 2007, 57). Local Emergency Managers, who were unwilling to provide Pandemic Influenza Response Plan, because they considered the information too sensitive for the public, were a serious hindrance in this study. In order to understand the full "context," as Creswell instructs, it is important to investigate the current laws and funding constraints that can inhibit public-private partnerships (Creswell 2007, 56). Certainly, actors at all levels of government have a profound appreciation for budgeting and legislation. This study will take a look into these two areas and attempt to identify opportunities where government can capitalize.

Creswell states that ―multiple issues arise in the collecting, analyzing, and evaluating strategies and plans and raise important questions" (Creswell 2007, 57). What resource shortfalls (capability gaps) might we find at each level of government during a Pandemic Influenza outbreak? Which private sector industries could be enlisted to provide critical resources during a Pandemic Influenza? What types of incentives, or instruments of power might the government use in order to establish public-private partnerships in the event of a Pandemic Influenza outbreak? These questions comprise the secondary questions of this thesis.

Gathering the data

The analysis draws heavily on Pandemic Influenza response plans of the Federal and State Governments. The resistance of local Emergency Management Divisions to provide information pertinent to this study forced a shift in focus at the local level towards ―resiliency," which according to the Journal of Homeland Security and Emergency Management, is becoming a ―goal and standard in Emergency Management" (McCreight 2010, 1). The major documents analyzed in chapter 4 include *The National Strategy for Pandemic Influenza Implementation Plan* and the *HHS Pandemic Influenza Plan* at the Federal level, and the *2009 State of Kansas Pandemic Influenza Preparedness and Response Plan* at the State level. Close examination of the structure and content of these plans expose inconsistencies that translate into capability gaps. This information is critical in order to identify and solicit private sector support during a Pandemic Influenza. These documents were scrutinized by a Federal interagency Working Group and several studies conducted by the Government Accountability Office (GAO). This study will show the results of these assessments and identify areas that require more attention.

Reporting Experiences

The Kansas Department of Health and Environment (KDHE) provided the *2009 Kansas Pandemic Influenza After Action Report/Improvement Plan (AAR/IP)* for this study. According to TC 25-20, *A Leader's Guide to After Action Reviews*, the premier resource for Army leadership, "After-action reviews identify how to correct deficiencies, sustain strengths, and focus on performance of specific mission essential tasks" (1). The *AAR/IP* exposed several gaps in planning and resources shortfalls at the Federal, State and local levels. Unlike the assessment conducted by the Federal Working Group and the GAO, which evaluated the *Kansas Pandemic Influenza Preparedness and Response Plan* from a static perspective (documentation only), the *AAR/IP* provides a first-hand account of the plan being implemented during the 2009 Kansas Pandemic Influenza. Comparison of the *State of Kansas Pandemic Influenza Preparedness and Response Plan* ("what was supposed to happen") with the *2009 Pandemic Influenza AAR/IP* ("what happened") exposes significant shortfalls (Headquarters, Departmentof the Army 1993, 3). According to Creswell, these results formulate the true "narrative;" in other words, the actual ability of the State of Kansas to prepare for and respond to Pandemic Influenza. It is important to note that if Pandemic Influenza were to occur today, this would be the plan that the State of Kansas would execute.

Interpreting the Meaning

Exposing the capability gaps in the plans is a significant hurdle to this "challenging" research approach and an essential task to accomplish the objectives of this study (Creswell 2007). So what do these gaps mean? The second and third subordinate questions of this thesis attempt to provide meaning. There are two forms of gaps analyzed

in this study: planning or procedural gaps, and resource gaps. Planning or procedural gaps happen when there are inconsistencies between plans disseminated by Federal, State and local governments. In this case, either more coordination is necessary in order to synchronize plans or more clarification is necessary on a particular topic. For example, this study will show that States must synchronize their plan with Federal plans to improve their Continuity of Operations effort. Similarly, States are asking the Federal Government to better define clinical terms ―pneumonia" and ―influenza" for hospitalized cases. Planning and procedural gaps rarely require external support from the private sector and can be fixed internally. However, resource shortfalls, such as hospital beds, laboratory equipment, transportation, and money can be consumed at enormous rates during a pandemic. If the public sector expends all of its available resources to respond to Pandemic Influenza, it must look externally to fill its shortfalls. With over eighty-five percent of the nation's resources belonging to the private sector, its seems logical that government should solicit their support. Chapter 4 will analyze the resource shortfalls and the subsequent opportunities for public-private sector partnership.

The final step in this research approach is determining what instruments of power or incentives can government leverage to increase public-private sector engagement. Creswell defines this as understanding the ―context" of the narrative. To fully understand the context of public and private engagements, a closer look into the legal and monetary conditions that shape the environment is necessary. Laws that can inhibit public-private sector partnerships, such as liability and information sharing can be changed to promote a better relationship between the public and private sectors. Money is a concern for the public and private sector. Public sector agencies operate under tight budgets and private

sector agencies focus on turning a profit. This study will show how proper investment in programs such as education, training and exercises can nurture public-private partnerships. Equal access to grant opportunities is important to foster a mutually supportive relationship between the public and private sectors.

Finally, this research will explore the concept of community resiliency. The idea that public and private sectors share responsibility for the community's preparedness and response to Pandemic Influenza is not an easy one to grasp. Community resiliency is included in the latest research into public-private sector engagement, and is important to understand the context and direction this narrative is going in the future.

Summary and Conclusion

The Narrative Research approach is appropriate for this study based on the available resources to analyze the research problem. Close examination of the Pandemic Influenza plans produced by the Federal and State Governments will expose gaps in planning and resources. This study will show how gaps can turn into opportunities for public-private partnerships. The majority of the Nation's resources are managed by the private sector. It is time for everyone to take Pandemic Influenza seriously and apply the necessary time, energy and resources to enlist the support of private industry. This narrative research study will offer some ideas on how to execute that objective.

CHAPTER 4

ANALYSIS

Pandemic Influenza could produce a public health emergency that is more daunting than any other type of naturally occurring, accidental, or terrorist-instigated event that our nation has experienced or is likely to experience. First, Pandemic Influenza could affect essentially every community in the nation almost simultaneously–i.e., within the space of a few weeks–and, if comparable to or more severe than the influenza pandemic of 1918, could result in 25 percent or more of the population ultimately experiencing life-threatening illness and/or being forced to dispense with normal activities to care for victims (The White House 2006b). Second, response activities within each affected community not only will need to be sustained for several months, generally with little or no outside help, but also might be degraded due to substantial influenza-induced absenteeism across the participating entities–public and private. Third, coping with degraded functioning in virtually every aspect of society could be so demanding as to preclude the initiation of significant recovery activities for many months.

Influenza pandemics, whether severe or comparatively mild, are recurring phenomena. The prevailing uncertainty therefore is not whether the world will experience another Pandemic Influenza, but rather when the next one will occur, and how severe it will be. And, considering that a catastrophic pandemic could be among the possibilities, thorough preparedness is imperative.

Today, the nation faces a new threat called Influenza A (H5N1), also known as Avian Flu or Bird Flu because it primarily affects chickens, turkeys, guinea fowls, migratory waterfowl, and other avian species. This subtype of Influenza A is spreading

through bird populations across Asia, Africa, and Europe, infecting domesticated birds, including ducks and chickens, and long-range migratory birds" (CIDRAP 2011). The first recorded appearance of H5N1 in humans occurred in Hong Kong in 1997. Since then, ~~t~~the virus has infected over 200 people in the Eastern Hemisphere, with a mortality rate of over 50 percent" (CIDRAP 2011).

At this time, Avian Influenza is primarily an animal disease and ~~H~~Human infections are generally limited to individuals who come into direct contact with infected birds. If the virus develops the capacity for sustained, efficient, human-to-human transmission, however, it could spread quickly around the globe" and potentially dwarf the mortality rate of 1918 (CIDRAP 2011). Consequently, our nation's public resources would reach their capacity in very little time, calling on the need for increased external resources. Since the vast amount of our nation's resources lie within private industry, it is time that the Federal, State and local governments take the necessary steps to enlist private sector support to help mitigate, prepare, respond and recover from Pandemic Influenza.

Chapter 4 systematically addresses the primary and secondary research questions by examining the current plans, policies and initiatives of the Federal, State, and local government. Chapter 4 provides the reader a thorough understanding of the complexity of the problem and greater appreciation for the demand for public-private sector collaboration.

Secondary Question 1

The first secondary question addresses the capability gaps that exist at each level of government in order to mitigate, prepare, respond and recover from Pandemic

Influenza. In order to adequately address this question, a close analysis of the plans and initiatives at each level of government is required.

Federal

National Strategy for Pandemic Influenza Implementation Plan

A general theme inherent to the strategies generated by the Federal Government is that they tend to be very broad in scope. Federal policies pertaining to Pandemic Influenza do well at defining the endstate, however, do very little in terms of expressing the ways and means. These documents call for the need to establish private-public partnerships, but fall short when it comes to providing the means necessary to facilitate private-public partnering at the State and local levels. The majority of public-private discussion centers around continuity planning and preservation of essential services and critical infrastructure. Very little information is presented at the Federal level that promotes active solicitation of private industries to support State and local plans. According to the *National Pandemic Strategy and Plan,* the Secretary of Health and Human Services is to lead the federal medical response to a pandemic, and the Secretary of Homeland Security will lead the overall domestic incident management and federal coordination. Since plans are byproducts of the overarching strategy, the *National Strategy for Pandemic Influenza Implementation Plan* and the *HHS' Pandemic Influenza Plan* were used for the basis of analysis at the Federal level. These plans detail the critical actions that public health authorities, non-governmental organizations, the private sector, and individuals should take to protect human health and reduce the morbidity and mortality caused by a pandemic. If a pandemic were to occur tomorrow, these two plans

would be initiated almost simultaneously and provide the Federal Government‘s comprehensive response.

According to the Government Accounting Office (GAO) testimony before the Committee on Homeland Security, House of Representatives, the *National Strategy for Pandemic Influenza* –was built on a large body of work spanning two decades, including reviews of government responses to prior disasters such as Hurricanes Andrew and Katrina, the devastation caused by the 9/11 terror attacks, efforts to address the Year 2000 (Y2K) computer challenges, and assessments of public health capacities in the face of bioterrorism and emerging infectious diseases such as Severe Acute Respiratory Syndrome (SARS)” (Government Accountability Office 2009, 3).

The National Strategy for Pandemic Influenza Implementation Plan is a comprehensive plan that further –clarifies the roles and responsibilities of governmental and non-governmental entities, including Federal, State, local and tribal authorities and regional, national, and international stakeholders, and provides preparedness guidance for all segments of society” (Homeland Security Council 2005). Whereas the *National Strategy for Pandemic Influenza* articulated the high-level principles and approach of the Federal Government to the threat of Pandemic Influenza, the *Implementation Plan* –proposes actions across the Federal Government in support of the Strategy, and describes the expectation of non-Federal entities, including State, local, and tribal governments, the private sector, international partners, and individuals” (The White House. 2006a). The *Implementation Plan* is structured according to functional areas: international efforts, transportation and borders, human health, and animal health. In addition to assigning responsibilities to each of these functional areas, the *Implementation*

Plan addresses the ―crosscutting economic issues and relevant legal authorities in each of these functional areas" (The White House 2006a). It further states in its guidance for Federal Department Planning, that it is the ―playbook and algorithm that the Federal Government will follow in its response to a pandemic" (The White House 2006a).

According to the GAO testimony on 29 January 2009, the *Strategy on Pandemic Influenza Implementation Plan* failed to ―establish priorities among its 324 action items and does not provide information on the financial resources needed to implement them" (Government Accountability Office 2009, 2). The GAO audit called for better ―coordination between the Federal, State and local governments and the private sector in preparing for a pandemic" (Government Accountability Office 2009, 7). The findings suggested that further actions are needed to address the capacity to respond to and recover from Pandemic Influenza, which require additional capacity in ―patient treatment space, and the acquisition and distribution of medical and other critical supplies, such as antivirals and vaccines" (Government Accountability Office 2009, 16). Although the Federal Government has provided considerable guidance and pandemic-related information to State and local governments, as the study suggests, ―[it] could augment their efforts with additional information on school closures, state border closures, and other topics" such as facilitating public-private partnerships (Government Accountability Office 2009, 18). Information obtained through extensive interviews with Federal and private sector representatives indicated several challenges they faced in coordinating Federal and private sector efforts to protect the nation's critical infrastructure in the event of a pandemic. One of these was ―a lack of clarity regarding the roles and responsibilities of the Federal and State governments on issues such as state border closures and

influenza pandemic vaccine distribution" (Government Accountability Office 2009, 18). In an effort to help facilitate public-private collaboration, the DHS established mechanisms and networks between the Federal and State governments and the private sector. The Federal and private sectors are working together through a ~~s~~et of coordinating councils, including sector-specific and cross-sector councils" (Government Accountability Office 2009, 7). To help protect the nation's critical infrastructure, DHS created these coordinating councils as ~~t~~he primary means of coordinating government and private sector efforts for industry sectors such as energy, food and agriculture, telecommunications, transportation, and water" (Government Accountability Office 2009, 7). The GAO report determined that these coordinating councils were underutilized and failed to ~~a~~ddress many of the challenges identified by sector representatives, such as clarifying the roles and responsibilities between Federal and State governments" (Government Accountability Office 2009, 18).

The *National Strategy for Pandemic Influenza Implementation Plan* does not address ~~w~~hat it will cost [to implement], where resources will be targeted to achieve the maximum benefits, and how it will balance benefits, risks, and costs" (Government Accountability Office 2009, 19). Neither the Strategy or the Plan ~~p~~rovide a picture of priorities or how adjustments might be made in view of resource constraints" (Government Accountability Office 2009, 19). Another major criticism cited by the GAO suggested that the State and local jurisdictions that will play a crucial role in preparing for and responding to a pandemic ~~w~~ere not directly involved in developing the *National Pandemic Implementation Plan*," even though it relies on these stakeholders' efforts (Government Accountability Office 2009, 19). Stakeholder involvement during the

planning process is especially important in order ~~to~~ ensure that the Federal Government‘s and nonfederal entities‘ responsibilities are clearly understood and agreed upon” (Government Accountability Office 2009, 6).

According to the *National Governor’s Association (NGA)* September 2008 issue brief on states‘ pandemic preparedness, states are concerned about a wide range of issues. The NGA reported that states wanted more guidance in the following areas: ~~1~~) workforce policies for health care, public safety, and private sectors; 2) schools; 3) situational awareness such as information on the arrival or departure of a disease in a particular state, county, or community; 4) public involvement; and 5) public-private sector engagement” (NGA, Center for Best Practices 2008, 1-2).

The private sector has also been planning for Pandemic Influenza, but many challenges still remain according to GAO testimony. To better protect critical infrastructure, Federal agencies and the private sector have worked together across a number of sectors to plan for a pandemic, including developing general pandemic preparedness guidance, such as checklists for continuity of business operations during a pandemic. However, Federal and private sector representatives have acknowledged that ~~s~~sustaining preparedness and readiness efforts for an influenza pandemic is a major challenge, primarily because of the uncertainty associated with a pandemic, limited financial and human resources, and the need to balance pandemic preparedness with other, more immediate, priorities, such as responding to outbreaks of foodborne illnesses in the food sector and, now, the effects of the financial crisis” (Government Accountability Office 2009, 10).

In summary, the *National Strategy on Pandemic Influenza Plan* and its *Implementation Plan* provide broad guidance to Federal, State and local entities that play crucial roles in our nation‘s efforts to combat Pandemic Influenza. Although there are numerous planning gaps inherent to these documents, and too many to list here, the most important to this study that warrant further investigation are: 1) failure to identify an entity responsible for carrying out the action and measures that are clearly linked to results; 2) failure of the Plan to prioritize the actions to be carried-out; and 3) failure to provide information on the financial resources needed to implement the plan (Government Accountability Office 2009, 20-21).

The Department of Health and Human Services Pandemic Influenza Plan

According to its *Strategic Plan*, ―The Department of Health and Human Services (HHS) coordinates the preparedness and response enterprise, which focuses on the continuum of preparedness from research and development of medical countermeasures to response delivery platforms that support State and local responders in reaching our citizens during an incident" (Department of Health and Human Services 2010). According HHS, its ―*Pandemic Influenza Plan* is a blueprint for Pandemic Influenza preparation and response" and provides guidance to National, State, and local policy makers and health departments (Department of Health and Human Services 2010). The HHS plan includes an overview of the threat of Pandemic Influenza, provides a description of the relationship of this document to other Federal plans, and outlines the key roles and responsibilities during a pandemic.

The *HHS Plan* has three parts: Part 1, the *HHS Strategic Plan*, ―outlines federal plans and preparation for public health and medical support in the event of a pandemic"

(Homeland Security Council 2005). It identifies key roles of HHS and its agencies in a pandemic and provides planning assumptions for Federal, State and local governments and public health operations plans. Part 2, *Public Health Guidance for State and Local Partners*, ~~"p~~rovides detailed guidance to State and local health departments in 11 key areas" (Department of Health and Human Services 2010). Part 3, the *HHS Pandemic Influenza Implementation Plan*, which was still under development at the time of this study, will include all HHS subordinate agencies' operational plans. When finished, these individual plans will also include detailed continuity of operations plans such as strategies for ensuring that critical everyday functions of each operating division are identified and maintained in the presence of the expected decreased staffing levels of a pandemic event. In addition to operations, ~~"t~~hese plans will elaborate on coordination, command and control, logistics, and planning, as well as financial and administration considerations" (Department of Health and Human Services 2010). According to HHS, ~~"t~~hese documents will serve as tools for continued engagement with stakeholders, State and local partners" (Department of Health and Human Services 2010).

The *National Strategy on Pandemic Influenza Implementation Plan* identified 324 governmental actions that were critical to improving our nation's ability to plan for and respond to Pandemic Influenza; of which 200 actions were assigned to HHS. Over 80 percent of these actions were accomplished by the end of 2007. They cover a broad range of preparedness, including enhancing our international laboratory networks, developing and releasing guidance on community-based measures to mitigate the effects of a pandemic, and expanding the Medical Reserve Corps program" (Department of Health and Human Services 2010).

The *HHS Pandemic Influenza Plan* is based on the following planning assumptions:

1. Susceptibility to the pandemic influenza subtype will be universal.

2. The clinical disease attack rate will be 30 percent in the overall population. Illness rates will be highest among school-aged children (about 40 percent) and decline with age. Among working adults, an average of 20 percent will become ill during a community outbreak.

3. Of those who become ill with influenza, 50 percent will seek outpatient medical care.

4. The number of hospitalizations and deaths will depend on the virulence of the pandemic virus. Estimates differ about 10-fold between more and less severe scenarios. Because the virulence of the influenza virus that causes the next pandemic cannot be predicted, two scenarios are presented based on extrapolation of past pandemic experience in table 1 (The White House 2006b).

Table 1. Number of Episodes of Illness, Healthcare Utilization, and Death Associated with Moderate and Severe Pandemic Influenza Scenarios*

Characteristic	Moderate (1958/68-like)	Severe (1918-like)
Illness	90 million (30%)	90 million (30%)
Oupatient Medical Care	45 million (50%)	45 million (50%)
Hospitalization	865,000	9,900,000
ICU Care	128,750	1,485,000
Mechanical Ventilation	64,875	742,500
Deaths	209,000	1,903,000

Source: US Department of Health and Human Services. *HHS Pandemic Influenza Plan.* 2010. http://www.hhs.gov/pandemicflu/plan/ (accessed November 13, 2010).
* Estimates based on extrapolation from past pandemics in the United States. These estimates do not include the potential impact of interventions not available during the 20th century pandemics.

Understanding these basic planning assumptions is important in order to grasp the enormous impact on the medical community and the problems faced by HHS to produce a plan with enough depth and scope to effectively meet these demands.

A major strength of the *HHS Pandemic Influenza Plan* is contained in Part 2 of the document, "Guidance to State and Local Partners." During the past several years, HHS has provided financial assistance to states to enhance their emergency preparedness activities, including Pandemic Influenza, through cooperative agreements. The CDC provides preparedness funding annually to the public health departments of all the States, certain major metropolitan areas, and other eligible entities through cooperative agreements. The Human Resources Services Administration (HRSA), in conjunction with CDC, awards complementary cooperative agreements to provide preparedness funding

annually to the same set of awardees for investment primarily in hospitals and other healthcare entities. According to a GAO report (June 2008), "all 50 states and 3 localities [that] received Federal pandemic funds have developed influenza pandemic plans and conducted pandemic exercises in accordance with Federal funding guidance" (Government Accountability Office 2009, 12). Six hundred million of the $5.62 billion that Congress appropriated in supplemental funding to HHS for pandemic preparedness was provided to State and local planning and exercising. A HHS-led interagency assessment (June 2008) of States' plans found on average that "States had many 'major gaps' in 16 of 22 priority areas of their influenza pandemic plans" (Government Accountability Office 2009, 13). Seven months later, another HHS-led assessment indicated that "although [States] had made important progress, most States still had major gaps in their pandemic plans" (Government Accountability Office 2009, 13)

Consequently, the HHS, in coordination with DHS and other Federal agencies, convened a series of workshops for States in five influenza pandemic regions across the country. The GAO report recommended that HHS and DHS continue with these workshops, because they "could be a useful model for sharing information and building relationships," and equally important, "address the gaps in the States' pandemic plans" (Government Accountability Office 2009, 13). As of February 2009, the HHS and DHS reported that "while no meetings had been planned, States will have to continuously update their pandemic plans and submit them for review" (Government Accountability Office 2009, 13).At the conclusion of the study, the GAO recommended that the HHS develop guidance for State and local communities in a number of areas such as community containment and school closure criteria. The HHS will continue to work with

the DHS to develop more information related to workforce policies, schools, situational awareness, and public-private sector engagement.

DHS and HHS are working diligently to improve our nation's response capability to catastrophic disasters, such as Pandemic Influenza. A mass casualty producing event such as a pandemic will generate a large number of patients or patients with highly specialized needs. The ability of local or regional health care systems to deliver services could be compromised, at least in the short term, because "the number of patients would far exceed the available hospital beds, medical personnel, pharmaceuticals, equipment, and supplies" (Government Accountability Office 2010, 8). Many States rely on mutual aid agreements with neighboring states in times of crisis, but in a pandemic, "States would likely be reluctant to provide assistance to each other due to scarce resources and fears of infection" (Government Accountability Office 2010, 8).

Over the last several years, "Congress has provided over $13 billion in supplemental funding for pandemic preparedness" (Government Accountability Office 2009, 15). The $5.62 billion that Congress provided in supplemental funding to HHS in 2006 was for, among other things: "1) monitoring disease spread to support rapid response; 2) developing vaccines and vaccine production capacity; 3) stockpiling antivirals and other countermeasures; 4) upgrading state and local capacity; and 5) upgrading laboratories and research at the CDC. About 77 percent of the supplemental funding went towards developing antivirals and vaccines for a pandemic and purchasing medical supplies" (Government Accountability Office 2009, 15-16).

According to HHS, "An outbreak will require additional capacity in many areas, including the procurement of additional patient treatment space and the acquisition and

distribution of medical and other supplies, such as antivirals and vaccines for an influenza pandemic" (The White House 2006b). A severe pandemic will overwhelm the available hospital bed space, which would be further complicated by the shortage of available providers due to high rates of absenteeism. Also, "the availability of antivirals and vaccines could be inadequate to meet the demand due to limited production, distribution, and administration capacity" (Government Accountability Office 2009, 16).

The HHS is leading an interagency effort to draft better guidance and secure additional funding to help States plan for additional capacity. The HHS revised its guidance for States to use when preparing for a medical surge and on prioritizing target groups for an influenza pandemic vaccine. States have not made progress on developing plans for altered standards of care guidelines, that is, "or providing care while allocating scarce equipment, supplies, and personnel in a way that serves the largest number of lives in a mass casualty event, [because of the] difficulty of addressing the medical, ethical, and legal issues involved" (Government Accountability Office 2009, 16-17). State and local officials continue to seek guidance from the Federal Government on school closings, fatality management, and facilitating medical surge, which neither the HHS or DHS adequately address in their plans.

The *National Strategy on Pandemic Influenza* and *HHS Pandemic Influenza Strategy*, along with their implementation plans, still contain many major gaps. The HHS and DHS have made serious strides securing additional funding to improve surveillance and increase the nation's stockpile of antivirals and vaccines, but their plans fail to address many areas of concern of State and local officials. HHS and DHS are working diligently to draft additional guidance in order to improve surge capacity, such as

guidance on school closures and social distancing, standards of care, prioritization of antiviral and vaccine supply, etc. Some of these issues may require the Federal Government to enact legislation in order to massage the numerous laws and regulations that can hinder our health care system‘s ability to respond during a pandemic. Other issues, such as distribution of vaccines and medical supplies, Personal Protective Equipment (PPE), and alternate care facilities, to name a few, will undoubtedly require public-private engagement to meet the demands. The next section will look closely at the State of Kansas and its *Pandemic Influenza Plan* in order to flush out its capability gaps and attempt to link its challenges and shortfalls with Federal Government plans.

State

The Federal Government has done, is doing, and must continue to do much to lead the nation as it prepares for the next influenza pandemic. But the Federal Government cannot do the job alone. Pandemic influenza preparedness by its nature must be a shared responsibility among all levels of government (Federal, State and local), the private sector, and individuals and their households. Each entity must understand its unique role in preparing for, responding to and recovering from Pandemic Influenza, and address its respective shortfalls to the best of its abilities and resources.

The following section will evaluate capability gaps associated with the *2009 State of Kansas Pandemic Influenza Preparedness and Response Plan*. The State of Kansas was chosen for this study in order to narrow the focus of the research and take advantage of State and local resources to acquire supporting documentation for this thesis. Coincidentally, Kansas became the third state in the nation with a confirmed case of H1N1 Influenza A on April 24, 2009 (Department of Health and Environment 2010, 5).

Furthermore, the State of Kansas has one of the most aggressive all-hazards emergency responses exercise programs in the nation, which was tested during the Greensburg tornado response in 2007 and the Leavenworth County multi-vehicle accident response in 2008 (Kansas Department of Health and Environment 2009, 2). The Kansas Department of Health and Environment (KDHE) is responsible for all Emergency Support Function 8 (Medical and Medical Services) throughout the State of Kansas, and is the designated lead on Pandemic Influenza planning (Kansas Department of Health and Environment 2009, 1).

In 2009, an interagency Pandemic Influenza Working Group was established and spearheaded by HHS. Their task was to conduct an assessment of States‘ operating plans ―with respect to preparedness for, response to, and recovery from an influenza pandemic" (Homeland Secuirty Council 2009, 4). The assessment centered on three Strategic Goals: (1) to Ensure Continuity of Operations of State Agencies and Continuity of State Government; (2) to Protect Citizens; and (3) to ensure the State‘s ability to Sustain/Support 17 Critical Infrastructure Sectors and Key Resources (Homeland Secuirty Council 2009, 7). Each Strategic Goal contained multiple Operating Objectives, which were subdivided into Supporting Activities. The report to the Homeland Security Council included the States‘ ability to meet the standards in each of the 27 Operating Objectives. The assessment team jointly assigned a single rating for Operational Readiness for the entire. State submission (Reference Block B. 14 of figure 1.). The assessment team made a determination, based on the number of Operating Objectivees achieved in last sub-Appendix of each of the three Strategic Goals, whether or not the State tested its response capability in some appropriate way.

According to the report‘s findings, as shown in Figure 1, the State of Kansas achieved an overall operational readiness rating of ―Substantial Evidence of Operational Readiness,” which is the highest rating a State can achieve in the study. However, a high score for Operational Readiness emerging from this assessment should not be interpreted as indicating that a State is truly operationally prepared. Rather, it is an ―indication that the State is taking steps to ensure that its plan is truly operational and that the Supporting Activities, as addressed in the plan, are actionable and viable as written” (Homeland Secuirty Council 2009, 12).

Strategic Goal	Operating Objectives	Appendix	State of Kansas Assessment
A. Ensure Continuity of Operations of State Agencies & Continuity of State Government	Sustain Operations of State Agencies & Support and Protect Government Workers	A.1	Inadequate Preparedness
	Ensure Public Health COOP During Each Phase of a Pandemic	A.2	Inadequate Preparedness
	Ensure Continuity of Food Supply System	A.3	No Major Gaps
	Ensure Ability to Respond to Agricultural Emergencies & Maintain Food Safety Net Programs	A.4	*Review & Follow-up in Progress*
	Ensure Integration of Uniformed Military Services Needs & Assets	A.5	No Major Gaps
	Sustain Transportation Systems	A.6	A Few Major Gaps
B. Protect Citizens	Ensure Surveillance and Laboratory Capability During Each Phase of a Pandemic	B.1	No Major Gaps
	Assist with Controls at U.S. Ports of Entry	B.2	Not Applicable
	Implement Community Mitigation Interventions	B.3	A Few Major Gaps
	Enhance State Plans to Enable Community Mitigation through Student Dismissal and School Closure	B.4	Inadequate Preparedness
	Acquire & Distribute Medical Countermeasures	B.5	A Few Major Gaps
	Ensure Mass Vaccination Capability During Each Phase of a Pandemic	B.6	No Major Gaps
	Provide Healthcare	B.7	A Few Major Gaps
	Manage Mass Fatalities	B.8	A Few Major Gaps
	Ensure Communication Capability During Each Phase of a Pandemic	B.9	Many Major Gaps
	Mitigate the Impact of an Influenza Pandemic on Workers in the State	B.10	Inadequate Preparedness
	Understand Official Communication Mechanisms for Foreign Missions, International Organizations, and Their Members in the United States	B.11	Not Applicable
	Integrate EMS and 9-1-1 into Pandemic Preparedness	B.12	Many Major Gaps
	Integrate Public Safety Answering Points into Pandemic Preparedness	B.13	Inadequate Preparedness
	Overall Operational Readiness	***B.14***	***Substantial Evidence of Operational Readiness***
	Public Safety and Law Enforcement	B.15	No Major Gaps
C. Sustain/Support 17 Critical Infrastructure Sectors and Key Resources	Define CIKR Protection, Planning & Preparedness Roles & Responsibilities	C.1	Inadequate Preparedness
	Build Public-Private Partnerships & Support Networks	C.2	Inadequate Preparedness
	Implement the NIPP Risk Management Framework for a Pandemic	C.3	Inadequate Preparedness
	Bolster CIKR Information Sharing & Protection Initiatives	C.4	Inadequate Preparedness
	Leverage Emergency Preparedness Activities for CIKR Protection, Planning & Preparedness	C.5	Inadequate Preparedness
	Integrate Federal & State CIKR Protection, Planning & Preparedness Activities	C.6	Inadequate Preparedness
	Allocate Scarce Resources	C.7	Inadequate Preparedness

Scoring for Comprehensiveness

> or = 85%	No Major Gaps
69-84%	A Few Major Gaps
50-68%	Many Major Gaps
1-49%	Inadequate Preparedness
	Not Applicable
	Review & Follow-up in Progress

Scoring for Operational Readiness (Block B.14)

> or = 50% Substantial Evidence of Operational Readiness
25-49% Significant Evidence of Operational Readiness
1-24% Little Evidence of Operational Readiness

Figure 1. Kansas State Assessment

Source: Created by author. The information presented was extracted from Homeland Secuirty Council, *Assessment of States' Operating Plans* (Washington, DC: Homeland Security Council, 2009), 8, 15.

The findings indicated that the *State of Kansas' Pandemic Influenza Preparedness and Response Plan* contained ~~"~~Major Gaps" in twenty-two of twenty-seven Operating

Objectives. Even more daunting was the fact that 44 percent of the Operating Objectives for the State of Kansas received the two lowest ratings (Homeland Secuirty Council 2009, 15). Preparedness is most advanced, with respect to several Operating Objectives that are exclusively or primarily the responsibility of State Public Health agencies: infectious disease surveillance and clinical laboratory operations (B. 1), distribution of antiviral drugs and vaccines (B. 5), mass vaccination (B. 6). ―These achievements no doubt were facilitated to a significant extent by repeated and substantial investments of Federal funds and technical assistance–not only annual awards for public health emergency preparedness in general since 2002, but also emergency supplemental appropriations in 2006 and 2007 that were targeted to Pandemic Influenza preparedness" (Homeland Secuirty Council 2009, 43). The gaps associated with ensuring continuity of operations for public health functions (A. 1 and A. 2) are of particular concern; for even the best plans can fail if managers cannot accommodate the significant absenteeism and disruptions in supporting services and supplies that an influenza pandemic is almost certain to produce. Although the State of Kansas is doing much better than most States in terms of preparing for surges in healthcare demand (B. 7) and fatalities (B. 8), it falls behind in terms of integration of emergency medical services systems into Pandemic Influenza preparedness (B. 12).

Similar challenges exist for many States, with respect to Operating Objectives that go beyond public health and healthcare preparedness. ―Continuity of operations for all State agencies (A. 1) merits significant attention if substantial socio-economic disruptions are to be avoided during an influenza pandemic" (Homeland Secuirty Council 2009, 43). The study concluded that the State of Kansas received its lowest ratings for providing

continuity-of-operations guidance to public and private employers across the State (B. 10), integrating public safety answering points (e. g. , emergency call centers) into pandemic preparedness (B. 13), and promoting the protection of critical infrastructure and key resources throughout the State (C.1- C. 7). The study cautioned, however, that ~~t~~the USG has provided guidance and technical assistance for many of these activities, but generally has not been in a position to award funds to help States develop them in the context of pandemic influenza preparedness" (Homeland Secuirty Council 2009, 43). Perhaps if more funding and guidance were provided by the Federal Government, States including Kansas could better address these shortfalls.

Figure 2 was constructed by the researcher by extracting data from the *Kansas Pandemic Influenza Preparedness and Response Plans.* These charts are presented here to inform the reader of the responsibilities of the Federal, State and County/local communities from the perspective of KDHE. Comparing information presented in these charts to information presented in Federal and local plans should expose any disconnections. This information can be extremely useful for planners and policymakers. It is very difficult to build a plan if standards and priorities are not clear. The study conducted by the Federal interagency Working Group proved that there is a disconnect between the priorities of the Federal government and the State of Kansas. Consequently, if the *Kansas Pandemic Influenza Preparedness and Response Plan* cannot compensate for this deficiency by providing clearer guidance and resources against unfulfilled requirements, subordinate counties will be left with a serious burden.

FEDERAL RESPONSIBILITIES

Surveillance in the U.S. and globally.
Epidemiological investigation in the U.S. and globally.
Development and use of diagnostic laboratory tests and reagents.
Development of reference strains and reagents for vaccines.
Vaccine evaluation and licensure.
Determination of populations at highest risk and strategies for national vaccination and antiviral use.
Assessment of measures to decrease transmission (such as travel restrictions, isolation and quarantine).
Purchase and deployment of federal cache of antivirals and vaccine.
Evaluation of the efficacy of response measures.
Deployment of the Commissioned Corps Readiness Force and Epidemic Intelligence Service officers.
Medical and public health communications.
Identification and training of Principal Federal Officers (PFO) and Federal Coordinating
Officers (FCO) to work with State Coordinating Officers (SCO) during pandemic response.
Provide federal guidance and expectations for exercises.

STATE OF KANSAS RESPONSIBILITIES

Identification of statewide public and private sector partners needed for effective planning and response.
Development of key components of the pandemic influenza preparedness plan; planning and coordination, situation monitoring and assessment, prevention and containment, health system response, and communications.
Epidemiologic investigations and analysis statewide.
Identify priority groups for vaccination.
Maintain influenza surveillance system.
Maintain and store state purchased antiviral cache.
Logistics planning for distribution of antivirals and vaccine.
Integration of pandemic influenza planning with other planning activities conducted at the local and state levels.
Coordination with local areas to ensure development of local plans as called for by the state plan and provision of resources, such as templates to assist in the planning process.
Development of data management systems needed to implement components of the plan. Assistance to local areas in exercising plans.
Participation with local areas in exercising their plans.
Coordination with adjoining jurisdictions.
Training state staff on roles and responsibilities identified in this plan.
Conducting preparedness exercises to test plans, procedures, and training.
Evaluating exercises and developing improvement plans to maximize response coordination.
Cooperation with federal partners to enhance laboratory monitoring of seasonal Influenza viruses.
Conducting year-round surveillance activities, including seasonal Influenza analysis and testing to detect novel subtypes of Influenza viruses.
Education of laboratory staff on safe handling of specimens suspected to contain novel Influenza viruses and surveillance for Influenza-like illness among laboratory personnel.

COUNTY/LOCAL RESPONSIBILITIES
Identification of local public and private sector partners needed for effective planning and response.
Coordination with adjoining jurisdictions.
Maintain and exercise the ESF 8 component of the County Emergency Operations Plan (EOP), the Biological Incident Annex (BIA), and the Mass Dispensing Standard Operating Guide (SOG).
Continue to emphasize annual influenza vaccine and the routine administration of pneumococcal vaccine for recommended risk groups during the preparation phases of the pandemic.
Develop a system to estimate the number of persons in priority groups for vaccination and deliver vaccine.
Assure the security of influenza vaccine during storage and delivery when it becomes available.
Plan for the potential of civil unrest due to resource scarcity.
Maintain the Risk Communications SOG and ensure coordination of information with local emergency management coordinators, hospitals and special populations in the area.
Maintain media relations at the local Joint Information Center (JIC).
Maintain a 24/7 contact list of key health department staff, local partners and media contacts.
Work with the KHEL to address laboratory surge capacity issues.
Train personnel in the management of respiratory specimens during an influenza pandemic.
Institute surveillance for influenza-like illness among laboratory personnel working with influenza virus.
Scale up to manage increased numbers of requests for Influenza testing.
Send selected specimens from possible pandemic Influenza patients to KHEL.
Clinical laboratories that receive diagnostic specimens from patients with suspected novel Influenza (based on clinical and epidemiologic data) should contact KDHE.

Figure 2.

Source: Information used to build figure 2 was obtained from Kansas Department of Health and Environment,*Kansas Pandemic Influenza Preparedness and Response Plan*, January 2009, http://www.kdheks.gov/cphp/download/KS_PF_Plan.pdf (accessed January 15, 2011), 7-9.

One of the first steps to addressing capability gaps in Pandemic Influenza planning is identifying the responsible authority for addressing the problem, that is of course, if one has been desginated. *The State of Kansas Pandemic Influenza Preparedness and Response Plan* identifies responsible authorities for carrying out tasks associated with each phase of its Pandemic Influenza plan (figure 2). Ideally, if the tasks identified in each phase of Kansas‘ Pandemic Influenza Plan were cross-referenced

against the Supporting Activities associated with each Operating Objective, the task of assigning responsibility is an easy one. After all, the criteria for the Working Group Study was derived from the *Federal Guidance to Assist States in Improving State- Level Pandemic Influenza Operating Plans* (2008), a multiagency effort led by HHS and DHS and a follow-up document to the *National Strategy on Pandemic Influenza Implementation Plan.* Unfortunately, the *Kansas Pandemic Influenza Preparedness and Response Plan* (2009) is not aligned with the *National Strategy Implementation Plan* or the most recently published *Federal Guidance to Assist States in Improving State-Level Pandemic Influenza Operating Plans*. Instead, the *Kansas Pandemic Preparedness and Response Plan* is organized around the World Health Organization's (WHO) Pandemic Phases along with corresponding U. S. Government and CDC Intervals. The Kansas plan is structured around five different functions described in detail according to each phase. Figure 3 and figure 4 are extracts from the Kansas plan, and show how each pandemic phase is "crosswalk[ed]" with each response activity.

WHO Phases		U.S. Government Stages		CDC Interval
INTERPANDEMIC PERIOD				
1	No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human disease is considered to be low.	0	New domestic animal outbreak in at-risk county	Investigation
2	No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.			

Figure 3. Snapshot WHO Pandemic Phases
Source: Kansas Department of Health and Environment, *Kansas Pandemic Influenza Preparedness and Response Plan*, January 2009, http://www.kdheks.gov/cphp/download/KS_PF_Plan.pdf (accessed January 15, 2011), 11. For complete description of WHO Pandemic Phases see illustration.

Response Phases	I Normal Operations	II Watch	III Response	IV Full-Scale Activation	V Recovery
WHO Pandemic Phases	Inter-pandemic Period Phase 1 & 2	Pandemic Alert Period Phase 3, 4 & 5	Pandemic Alert Period Phase 5	Pandemic Period Phase 6	Postpandemic Period
US Government Phases	USG Phase 0	USG Phase 1, 2	USG Phase 2, 3, 4	USG Phase 5	USG Phase 6
CDC Interval	Investigation	Investigation	Recognition	Initiation, Acceleration, Peak, Deceleration	Resolution
Planning and Coordination	Planning with state agencies and task forces. Training and exercising of plan	Notify KDEM and other partners. Activate Plan.	Minimal or Extended Response. DOH Resources. DOC and activated to Level 3, request KDEM Liaison	Ask for Governor's Declaration of Emergency	Demobilization and conduct AAR.

Figure 4. Snapshot of Crosswalk for Kansas Pandemic Preparedness & Response Plan
Source: Extracted from Kansas Department of Health and Environment, *Kansas Pandemic Influenza Preparedness and Response Plan*, January 2009, http://www.kdheks.gov/cphp/download/KS_PF_Plan.pdf (accessed January 15, 2011), 48.

It is important to note that —Kansas has adopted the Incident Command System (ICS) and National Incident Management System (NIMS) for responding to disasters and emergencies (Executive Order 05-03) "[1] (Kansas Department of Health and Environment 2009, 11). Despite being NIMS compliant, there still remains a great deal of ambiguity between Federal and State expectations in terms of preparing for and responding to Pandemic Influenza according to the plans analyzed in this study. This problem causes confusion at all levels, and makes assigning responsibility for executing certain activities very problematic. The consequences of failing to meet Federal mandates could result in the loss of crucial funding. Most grants distributed by the Federal government are

[1]Although the *Kansas Pandemic Influenza Preparedness and Response Plan* (2009) makes reference to the 2004 version of NIMS and *2004 National Response Plan (NRP),* an assumption can be made that the State of Kansas has since adopted the 2008 version of NIMS and 2008 National Response Framework (NRF).

competitive and determined by the State's compliance with Federal guidelines. But if the assessment conducted by the Pandemic Influenza Working Group is an indicator of future Federal support, the majority of the States and U.S. territories would lose out - including the State of Kansas.

Following the aftermath of the 2009 flu pandemic, the State of Kansas conducted an After Action Review (AAR) / Improvement Plan (IP).[2] The observations included in the AAR/IP identify a significant number of capabilities gaps. The KDHE response to the 2009 H1N1 Influenza A Virus Pandemic utilized the following capabilities that provided the basis for evaluation (Target Capabilities List, or TCL): Mass Prophylaxis; Medical Supplies Management and Distribution; Emergency Public Information and Warning; Public Health Laboratory and Investigation; Community Preparedness and Participation; and On-Site Incident Management. The response was composed of KDHE and numerous Federal, State, regional, and local partners, including health departments, hospitals, pharmacies, schools, and primary care/safety net clinics in all 105 Kansas counties. The following is a list of participating organizations during the 2009 Pandemic which lasted 342 days (KDHE EOC stand-up to closure):

Kansas Department of Health & Environment (KDHE)
Kansas Division of Emergency Management (KDEM)
Kansas Association of Local Health Departments (KALHD)
Kansas Hospital Association (KHA)
Kansas Association for the Medically Underserved (KAMU)
Kansas State Department of Education (KSDE)
Kansas Board of Pharmacy

[2]The agency's *H1N1 Influenza A Pandemic Response After Action Review and Improvement Plan*, developed by Bureau of Public Health Protection with input from across KDHE, was selected by the Centers for Disease Control and Prevention as one of the best five in the country, which resulted in an invitation to a national follow-up workshop conducted by Harvard University.

Kansas Pharmacists‘ Association
Kansas National Guard
Centers for Disease Control & Prevention (CDC)
U. S. Department of Health and Human Services (HHS)
Kansas Medical Society (KMS)
Kansas Chapter of the American Academy of Pediatrics (Kansas AAP)
Kansas Clinical Resource Network (CRN)

The observations cited in the *AAR/IP Report* are organized by capability and associated activities identified on the *TCL and Exercise Evaluation Guides (EEG)* developed through the Federal Homeland Security Exercise and Evaluation Program (HSEEP). The AAR/IP amassed over 300 observations; for the purposes of this study, only those observations that have the greatest potential for public-private sector engagement or major planning gaps were evaluated in greater depth.

–The Emergency Public Information and Warning capability includes public information, alert/warnings, and notification. It involves developing, coordinating, and disseminating information to the public, coordinating officials, and incident management and responders across all jurisdictions and disciplines effectively under all- hazard conditions" (Department of Health and Environment 2010, 30). The central focus of the Emergency Public Information and Warning are Issue Emergency Warning and Manage Emergency Public Information & Warnings. Despite efforts by the State Health Officer to reach out to organizations such as the Kansas Medical Society (KMS) and the Kansas Chapter of the American Academy of Pediatrics (KAAP) to send letters to physicians with H1N1 information, KDHE could never be –certain that all the State‘s physicians were being reached." Letters were only sent to physicians who were members of those organizations. The *AAR/IP Report* determined that better communication links need to be developed with physicians statewide to communicate and share information from KDHE.

The internal and external communication programs, as well as the plans for coordinated messaging,[3] contributed to positive and thorough coverage from Kansas news media. However, messages provided by the Centers for Disease Control & Prevention (CDC) were not always consistent. School closure guidance, home isolation guidance, and early estimates of vaccine availability changed frequently, making it difficult to send consistent messages to the public. Delays in issuance of national guidance "impeded State-level decision-making and strategies regarding critical policy and operational issues" (Department of Health and Environment 2010, 33). These challenges are consistent with the findings of the Pandemic Influenza Working Group and GAO studies cited earlier in this chapter.

The Laboratory Testing capability is "the ongoing surveillance, rapid detection, confirmatory testing, data reporting, investigative support, and laboratory networking to address potential exposure or exposure to all-hazards, which include chemical, radiological, and biological agents in all matrices, including clinical specimens, food, and environmental samples, (e.g., water, air, soil)" (Department of Health and Environment 2010, 34). All-hazard threats include those deliberately released with criminal intent, as well as those that may be present as a result of unintentional or natural occurrences. The key tasks associated with this capability are Confirmation Testing, Support Public Health Epidemiological Investigations, and Report Results.

[3]Coordinated Messaging conducted by the State of Kansas included: TV PSA, radio PSA, movie theater advertisements, Kansas Public Radio, newspaper advertisements, press releases (94 percent), press conferences, university sports programs advertisements, State Health Officer op-ed columns, and presentations.

The Kansas Health & Environmental Laboratories (KHEL) confirmed results using the CDC detection methods for H1N1 Influenza A. This included collecting samples from local laboratories; documenting, identifying, and recording samples correctly; and performing testing and assessment using appropriate protocols. H1N1 tested Kansas Health and Environmental Laboratories‘ (KHEL) ability to keep up with an unprecedented demand, proving the value of the lab to public health surveillance in an emergency. According to the *AAR/IP Report*, KHEL kept up with the high demand for testing by constantly re-evaluating the procedures that the analysts used to complete the tasks at hand. Staff also kept up with the demand through a surge of H1N1 microbiologists coming on board in the fall of 2009, and cross training of other microbiologists in the other sections of KHEL. By securing additional funding, KHEL was able to purchase four ABI instruments, and ~~th~~ose were kept running approximately twelve hours a day" (Department of Health and Environment 2010, 35). The *AAR/IP Report* identified a need to ~~—~~improve throughput by analyzing the processes and making appropriate changes to enhance efficiency" (Department of Health and Environment 2010, 36). Although cross-training of laboratory personnel proved efficient for ~~o~~nly certain steps of the procedure, [which] decreased training time," there were significant staff shortfalls ~~a~~s triaging routine specimens was a challenge and the Incident Command System (ICS) structure created additional staff needs" (Department of Health and Environment 2010, 36).

Support Public Health Epidemiological Investigations and Reporting are two critical tasks associated with the capability of Laboratory Testing. KHEL worked in close partnership with Public Health Epidemiology ~~t~~o provide timely data to assure

implementation of effective prevention, detection, and control measures, including treatment" (Department of Health and Environment 2010, 34). Through constant communication with their epidemiological partners, KHEL was able to confirm that necessary supplies to collect specimens were on-hand and provide timely results. In addition, KHEL followed the appropriate CLIA[4] laboratory protocols for safe handling of samples, and conducted testing and assessment using appropriate protocols. On the other hand, data transfer was difficult in the beginning with the KHEL Laboratory Information Management System (LIMS), and as the pandemic increased, several things came on board to ease the transition of data. This included ~~a~~automatic faxing, electronic data transfers from thumb drives, and the Public Health Information Network (PHIN) transfers" (Department of Health and Environment 2010, 36). Because of the increased data load, these transfers would crash an employee's desktop computer on a regular basis. The process was also time consuming to manually fax each facility. The *AAR/IP Report* recommended implementing a ~~P~~PHIN-compliant LIMS system, which would save time by KHEL staff to electronically transfer data between laboratories, epidemiology staff, and the submitting facilities" (2010, 36). Several automation upgrades to improve data transfer between laboratories were also suggested in order to improve accuracy and efficiency of reporting.

The fifth capability evaluated in the *Kansas 2009 Pandemic Influenza AAR/IP Report* is Epidemiological Surveillance and Investigation, which is the capacity to rapidly conduct epidemiological investigations. ~~I~~It includes exposure and disease (both

[4]The Centers for Medicare & Medicaid Services (CMS) regulates all laboratory testing in the U.S. through the Clinical Laboratory Improvement Amendments (CLIA). The goal of CLIA is to insure quality laboratory testing.

deliberate release and naturally occurring) detection, rapid implementation of active surveillance, maintenance of ongoing surveillance activities, epidemiological analysis, and communication with the public and providers about case definitions, disease risk, mitigation, and recommendations for the implementation of control measures" (2010, 37). The major deficiencies cited in the *AAR/IP Report* center around expanding the Kansas Electronic Disease Surveillance System (KS-EDSS).

During the 2009 Pandemic Influenza outbreak, too many local health departments were using alternate forms and not electronically submitting their information. Local health departments responded quickly to investigate cases in their counties, which assisted the State in characterizing the spread of the virus statewide. However, the hospitals lacked an automated system to capture data needed by the State epidemiologists; therefore, much of the hospital data collection was done by hand at the hospital level.

Complicating matters even further was the lack of standardized case definitions of ~~–p~~neumonia" and ~~–i~~nfluenza" for hospitalized cases. Definitions of pneumonia and influenza for hospitalized cases need to be standardized. Timely and accurate reporting is essential for epidemiologists to make informed decisions that dictate the distribution of scarce resources, placing some populations at risk. Not only were some agencies submitting information through the wrong medium, but due to the lack of standardized definitions for pneumonia and influenza, they were submitting the wrong information altogether. Ironically, the Pandemic Influenza Working group determined that the State of Kansas had no major gaps in the area of ~~–E~~nsure Surveillance and Laboratory during each phase of a pandemic, Appendix B1" (Homeland Secuirty Council 2009, 15). It is

important to note that the interagency Pandemic Influenza Working group based their assessment exclusively on documentation - not execution; thus proving that a good plan does not always translate into good execution.

The sixth capability evaluated as part of the *2009 Kansas Pandemic Influenza AAR/IP Report* was Community Preparedness and Participation. According to its website, the *Homeland Security Exercise and Evaluation Program (HSEEP),* this capability "provides that everyone in America is fully aware, trained, and practiced on how to prevent, protect/mitigate, prepare for, and respond to all threats and hazards". This requires a role for citizens in personal preparedness, exercises, ongoing volunteer programs, and surge capacity response. Specific capabilities for universal preparedness, including "knowledge of all-hazards (technological, natural, and terrorist incidents) and related protective measures, skills, and supplies will be determined through a collaborative process with emergency responders" (Department of Homeland Security 2011e).

The KDHE Community Mitigation Team trained the public to be aware of public health emergency events through coordinated non-pharmacological messaging that was shared with the public, schools, and other groups. These messages targeted how the public could remain healthy and prevent spread of the disease in the absence of a vaccine. The results of the *AAR/IP Report* show that the KDHE Community Mitigation Team made an exhaustive attempt to educate the public, and this was a good plan. The only recommendation by the *AAR/IP Report* was to "develop better lines of communication with faith-based organizations and non-English speaking communities" (Department of Health and Environment 2010, 41). The results of the Pandemic Influenza Working

Group indicated that *Kansas' Pandemic Influenza Preparedness and Response Plan* contained "Many Major Gaps," so once again, there were disparities between the observations made by the Federal and State governments (Homeland Secuirty Council 2009, 15)

The final capability assessed in the *2009 Pandemic Influenza AAR/IP Report* was On-Site Incident Management. "The ICS structure was modified so that Technical Specialists/Subject Matter Experts (SME) in epidemiology, laboratory, and immunizations reported directly to the Incident Commander, who was the State Health Officer, rather than the Operations Section Chief, as outlined in the EOP" (Department of Health and Environment 2010, 43). This change proved to be very effective once all members of the staff knew their roles and expectations. The EOP did not distinguish the roles and responsibilities of ICS positions from the roles and responsibilities of the bureaus or units in KDHE. The *AAR/IP Report* also indicated that many of the KDHE staff and management did not understand the Emergency Operations Plan (EOP). This situation can cause a great deal of confusion among the staff that can translate into inefficient decision-making and wasted resources.

Some of the major strengths identified in the *2009 Pandemic Influenza AAR/IP Report* were linked to the strong partnerships with "member organizations such as the Kansas Association of Local Health Departments, the Kansas Hospital Association, and the Kansas Association for the Medically Underserved" (Department of Health and Environment 2010, 45). Strong relationships also have been developed with other State agencies such as the Kansas Division of Emergency Management and the Kansas State Department of Education. New relationships and stronger relationships were forged

during H1N1 with organizations such as the Kansas Medical Society, the Kansas Chapter of the American Academy of Pediatrics, the Kansas Clinical Resource Network, the Kansas Pharmacists'Association, and the Kansas Board of Pharmacy. These partnerships not only serve as conduits of information, but they also serve as crucial links between government entities and the private sector. Secondary Question Two will attempt to answer just how the Federal, State and local governments can leverage these relationships to tap into resources in the private sector.

The *2009 Kansas Pandemic Influenza AAP/IP* admitted ~~t~~hat even the best laid out plans may need to be modified, and the plans will never be all-inclusive for all possible contingencies"[5] (Department of Health and Environment 2010, 45). Therefore, plans must be flexible enough to adjust to new and emerging circumstances. This section identified a number of capacity gaps associated with the *Kansas Pandemic Influenza Preparedness and Response Plan*. The gaps were identified through a number of sources including GAO reports to Congress on Pandemic Influenza Preparedness, an interagency Federal study conducted by the Pandemic Influenza Working Group and the *2009 Kansas Pandemic Influenza AAR/IP Report*. The differences in the metrics associated with each assessment exposes the need for more Federal guidance. However, despite the differences in metrics, these documents provide valuable information for planners. Collectively, these documents expose capability gaps that will require either additional resources or

[5]The *Kansas Response Plan (KRP)* is undergoing its three-year revision maintenance, including Emergency Support Function 8 (Health and Medical) and the Biological Incident Annex, which is the basis of the *Kansas Pandemic Influenza Preparedness and Response Plan*. The *Kansas Pandemic Influenza Preparedness and Response Plan* is updated annually.

process improvements. Secondary Question Two will address how public-private partnerships can build capacity in the areas identified through these assessments.

Local

In 89 of 105 counties in Kansas, the county commissioners serve as the board of health (K.S.A. 65-201).[6] The local health department is a division of the county government, and staff members are county employees. Decisions about the scope of services, budget, staffing, and other features of the agency are made at the county level. A small number of bi-county systems for public health delivery have existed in the past, although all have dissolved.

Cheyenne, Haskell, and Morris counties deliver public health services as a department or function of their county hospital. The hospital board serves as the board of health, and budget support is typically channeled from county funds to the hospital. Public health services are provided to seven counties by two multi-county agencies, NEK Multi-county (Atchison, Brown, Jackson) and SEK Multi-county (Allen, Anderson,

[6]K.S.A. 65-201. The county commissioners of the several counties of this state shall act as county boards of health for their respective counties. Each countyboard thus created shall appoint a person licensed to practice medicine and surgery, preference being given to persons who have training in public health, who shall serve in an advisory capacity to the county board of health and as the local health officer, except that the appointing authority of city-county, county or multi-county health units with less than one hundred thousand (100,000) population may appoint a qualified local health program administrator as the local health office if a person licensed to practice medicine and surgery or a person licensed to practice dentistry is designated as a consultant to direct the administrator on program and related medical and professional matters. The local health officer or local health program administrator shall hold office at the pleasure of the board.

Bourbon, and Woodson). NEK operates as a 501c3[7] under contract to serve the three counties listed. Five counties have formed joint city-county boards of health. In general, these boards represent the interests of both units of government by having city and county commissioners or their appointees sit on the board. Other representatives to these boards may include healthcare providers, consumers or members-at-large, and some include veterinarians. A sixth county, Wyandotte, has a unified government. Those eleven commissioners are the State of Kansas Board of Health (Kansas Department of Health and Environment 2011).

In order to collect data that was demographically diverse (e.g., population size, ethnic diversity, city, suburban, rural, etc.), the researcher attempted to contact 50 of the 105 county seats and regional public health departments in the State of Kansas. Of the 50 contacted, only the Miami County, Johnson County, and Lawrence-Douglas County Health Departments provided information worth mentioning in this study. The majority of the people who responded decided that the information included in their plans was too sensitive to be released to the public. Other responses either referred back to their Emergency Management Department's Basic EOP, or in some cases, if they maintained one, referenced their Public Health Department's website on Pandemic Influenza. In accordance with the *Kansas Pandemic Influenza Preparedness and Response Plan,* it is the responsibility of the county to —maintain and exercise Emergency Support Function (ESF) 8, Public Health and Medical Services, component as part of their County's EOP,

[7]Organizations described in section 501(c)(3) are commonly referred to as charitable organizations. Organizations described in section 501(c)(3), other than testing for public safety organizations, are eligible to receive tax-deductible contributions in accordance with IRS Code section 170.

Biological Index Annex (BIA), and Mass Dispensing Standard Operating Guidance (SOG)" (Kansas Department of Health and Environment 2009, 8-9). Therefore, it can be implied by this State guidance that although a separate Pandemic Influenza Plan is extremely beneficial, it is not required so long as the County EOP sufficiently addresses ESF 8, BIA, and Mass Dispensing SOG pertaining to Pandemic Influenza. Unfortunately the Miami County, Johnson County and Lawrence-Douglas County Base EOPs provided for this research did not contain information specific to Pandemic Influenza. The plans address ESF 8, but do not include specific guidance for Pandemic Influenza. Information on BIA and Mass Dispensing SOG was also excluded.

The *2009 Pandemic Influenza AAR/IP Report* concluded that the ―State's response to the 2009 H1N1 Influenza Pandemic [was] a success" (45). It further stated that ―State and local partners have been preparing for an influenza pandemic since 2006 through planning and participating in various degrees of exercises, including seminars, tabletops, drills, functional, and full-scale exercises. The response actively engaged State and local partners, public and private, to mitigate and reduce the spread of disease through vaccinations and non-pharmaceutical interventions" (Department of Health and Environment 2010, 45). This statement strongly supports the active engagement between State and local governments. It is conceivable that local governments do have viable Pandemic Influenza Plans that rely on public-private partnerships, but these agreements are too sensitive to share with the public. Miami County and Lawrence-Douglas County Public Health Departments participate in the State's Emergency Management Assistance

Compact (EMAC)[8] that enables them to give and receive assistance with neighboring States. Lawrence-Douglas County also provided examples of their current Memorandums of Agreement (MOA) with the University of Kansas that provides alternate facilities to conduct quarantine operations, mass dispense medications, and distribute medical supplies. These MOAs, despite their relationship to a public university, suggest that Lawrence-Douglas is willing to look outward to fill capability gaps. It is understandable that local governments would be more inclined to request support from public sources before seeking private industry in order to keep costs to a minimum. The unwillingness of local governments to seek out private industry may be based on false perceptions and worthy of further investigation. The Secondary Question Two of this thesis will look into this dynamic further.

The information provided by the county and regional public health departments is not useful for this thesis. Their basic EOPs do not sufficiently address the complexities of Pandemic Influenza. The websites the county officials referenced are excellent sites for PSA, but do very little to show support for public-private engagement, which is the basis of this thesis. The next section will look closely at industries that could be recruited to fill the capability gaps in order to build community resiliency in the event of a pandemic. Without knowing the current gaps associated with county and local EOPs, assumptions will have to be made to argue for increased public-private partnerships at the local community level.

[8]EMAC, the Emergency Management Assistance Compact, is a congressionally ratified organization that provides form and structure to interstate mutual aid. Through EMAC, a disaster impacted state can request and receive assistance from other member states quickly and efficiently, resolving two key issues upfront: liability and reimbursement.

Secondary Question 2

> The single greatest strength that we possess is the indomitable spirit and capability of the American people. So building a resilient nation doesn't come from a top-down, government-only, command-and-control approach; it comes from a bottom-up approach; it comes from Americans connecting, collaborating; it comes from asking questions and finding new solutions. And it comes from all of us as a shared responsibility. (National Research Council. 2011, 1)

State and Federal governments have acknowledged the importance of collaboration between private and public organizations to develop planning for disaster preparedness and response. "Despite growing ad hoc experience across the country, there is currently no comprehensive framework to guide private-public collaboration focused on disaster preparedness, response, and recovery" (National Research Council 2011, 1). This section attempts to show how our communities can improve resiliency from Pandemic Influenza through increased public-private collaboration. Rather than systematically addressing each capability gap identified in the previous section, Secondary Question One, this section will take a much broader approach the issue of community resiliency[9] and the need for increased public-private collaboration. The capability gaps identified in the previous section will be used as supporting evidence of points made in this section. This approach was adopted because of the noticeable differences between the documents presented in the previous section. Depending on which document was being investigated, i.e., GOA Report, Pandemic Working Group, AAR/IP, there was likely to be different conclusions. This approach should negate the disparate findings in the previous section, and perhaps offer a more generalized solution that can be applied throughout the nation, and not just the State of Kansas. After all,when

[9]The term resilience describes the continued ability of a person, group, or system to function during and after any sort of stress.

Pandemic Influenza strikes again, it will not be concerned about borders or geography–it will impact us all.

Federal

Federal Government plans lack specific guidance in several areas of interest to State and local planners. The interagency Federal Pandemic Influenza Working Group, the *GAO Report* on Pandemic Influenza planning, and the *2009 Kansas Pandemic Influenza AAR/IP* all reported that Federal guidelines failed to sufficiently address topics such as school closures, social distancing, and surge capacity. Additionally, Federal guidelines do not prioritize the actions required of State and local governments or provide the necessary financial means to fund programs. Clearly, these issues will have either a direct or indirect effect on the ability of State and local leaders to engage in public-private partnerships. Sustainable public-private collaboration depends on ~~–tr~~ust, communication, strong bonds between the public and private sectors, and acceptable returns on investment for all involved" (National Research Council 2011, 5). Naturally, if the State and local authorities do not have a prioritized list of objectives, it does not provide fertile ground to grow a public-private partnerships. The Federal Government must address these inefficiencies in their plan and address these shortfalls during the inter-Pandemic period. Otherwise, States will not have the necessary situational awareness to effectively negotiate public-private partnerships.

In an effort to help facilitate public-private collaboration, the DHS established mechanisms and networks between the Federal and State governments and the private sector. The Federal and private sectors are working together through a ~~–s~~et of coordinating councils, including sector-specific and cross-sector councils" (Government

Accountability Office 2009, 7). These councils were established by the Federal Government in order to address the concerns of the private sector community and to foster new relationships in order to build capacity. These councils, as the *GAO Report* concluded, were underutilized and failed to sustain over time. This was a top-down effort, and as the National Research Council (NRC) report on *Building Community Disaster Resilience through Private-Public Collaboration* indicated in its findings, "resilience to disasters is built at the community level [and must] be a "bottom-up grass roots" where the local-level private–public collaboration is paramount (National Research Council 2011, 5). Although the councils established by DHS served a valuable purpose, they were instigated at the wrong level. The Federal Government should work to set the conditions for State and local emergency managers to establish these councils, or professional organiztions. The Federal Government can provide guidance and funding for these organizations to collaborate and establish public-private relationships that meet the communities' needs and are sustainable over time.

DHS and HHS have several programs aimed at leveraging private sector support in support of all hazards response planning and Pandemic Influenza. The Federal Emergency Management Agency (FEMA) established a Private Sector Outreach position in its Office of External Affairs at its National Headquarters and created a position at each of its ten Regional Headquarters. At FEMA Region VII Headquarters in Kansas City, this position rotates on a semi-annual basis, and large corporations such as Home Depot, Walmart, and Target Corporation send trained representatives to serve in this capacity.

The DHS Office of Critical Infrastructure Protection actively engages sector industries in order to protect America‘s critical infrastructure, which includes Continuity of Operations during Pandemic Influenza. Generally, the private sector industries engaged by the Office of Critical Infrastructure Protection are sector specific, that is, belong to a community responsible for providing support to critical infrastructure only. Through active engagement with Professional Organizations that lead these sector industries, DHS is able to promulgate guidance and regulations and improve resiliency through capacity building during a natural or manmade disaster, such as Pandemic Influenza.

The DHS National Infrastructure Simulation and Analysis Center (NISAC) conducts modeling, simulation, and analyses to address critical infrastructure and key resources (CI/KR). The Center conducts studies to analyze the impact of Pandemic Influenza on our nation‘s critical infrastructure, such as Telework and Communications Surge. The Office of Critical Infrastructure Protection Investigations Division also conducts assessments at designated sites responsible for providing critical services: Energy; Water & Waste Water Treatment; Public Health Services; Telecommunications; Transportation; Banking & Finance; and Agriculture & Food. At this time, however, Federal law prohibits these investigators from enforcing compliance of their recommendations on private industry. Complicating this matter is the fact that these investigation teams are seriously understaffed to conduct the volume of inspections that can range up to eight states, such as Region VII.

DHS needs to continue its efforts to engage the private sector and build stronger lasting relationships that will endure the next pandemic. DHS needs to work with

legislators to refine the laws and regulations that often impede these relationships or fail to provide the necessary enforcement power to ensure continuity of operations during Pandemic Influenza. DHS must increase its capacity of its investigation division charged with the responsibility of conducting these assessments. DHS should work with Congress to increase funding for grants to establish Emergency Operations Centers (EOC) in private sector industries with critical responsibility during Pandemic Influenza, such as clinical laboratories and key medical distribution centers. Finally, DHS should publish clearer guidance in the *National Pandemic Influenza Implementation Plan* that clearly establishes priorities and the necessary means to carryout public-private sector partnerships.

HHS is actively engaged with the private sector, but largely from a research stand point. HHS provides research grants to many private sector companies to improve vaccines and antiviral production. Pharmaceutical and medical supply companies are working diligently to stay ahead of the next pandemic by increasing the capacity of the Strategic National Stockpile (SNS).

HHS must work with DHS to refine the *National Pandemic Influenza Implementation Plan* in order to provide State and local governments clearer guidance on topics such as social distancing, medical surge, school closure, and providing clinical definitions ~~–p~~neumonia" and ~~–in~~fluenza." HHS should work with DHS to provide funding for States in order to facilitate contracting during the inter-Pandemic period and not wait for the first confirmation to begin taking action. HHS should work with healthcare professionals and regulatory organizations such as the Food and Drug Administration (FDA) to relax guidelines in order to facilitate the production and

administration of vaccines and antivirals. Similarly, HHS should work to establish standardized automated reporting methods and provide funding for rural communities without access to major communications nodes. HHS should work with regulators to assist provider and laboratory protocols to increase capacity during Pandemic Influenza, i.e., enable pharmacy students to administer vaccines and cross train laboratory personnel to conduct collect specimens during the Pandemic period.

In summary, more funding, legislation, and guidance is required of the Federal Government in order to facilitate increased public-private partnerships. Funding is necessary in order to build medical capacity at the State and local levels and provide the means necessary to establish contracts during the inter-Pandemic period. Legislation needs to be generated at the Federal level to establish priorities, set universal standards of reporting, and relax certain regulations that impede a timely response. Revision of the current *National Pandemic Influenza Implementation Plan* is necessary to provide clear guidance on topics critical for State and local emergency planners.

State and Local

> The private sector, with targeted and timely guidance from the Federal Government, should develop plans to provide essential services even in the face of sustained and significant absenteeism. Businesses should also integrate their planning into their communities' planning. (Fact Sheet: Advancing the Nation's Preparedness for Pandemic Influenza 2007, 1)

A 2009 study conducted by the National Research Council (NRC) states that ~~"d~~isaster resilience correlates strongly with community resilience, and effective collaboration depends on a community-engagement approach" (National Research Council 2009, 8). The collaborative partnership will ideally reflect and accommodate the unique factors of the community it serves. Such factors include ~~"j~~urisdictional challenges,

politics, public policy, geography, local priorities, and access to resources" (National Research Council 2011, 8). The State of Kansas, according the *2009 Kansas Pandemic Influenza AAR/IP*, leveraged its relationships with various professional organizations, i.e., the Kansas Medical Society, the Kansas Chapter of the American Academy of Pediatrics, the Kansas Pharmacists' Association, etc., in order to disseminate information and prepare for the 2009 Pandemic Influenza in the State of Kansas. These partnerships contributed to the successful response during the 2009 Kansas Pandemic. The majority of the professional organizations KDHE worked closely with maintained local chapters that facilitated a "grass roots bottom-up approach," another recommendation by the NRC, and echoed in Secretary Janet Napolitano's remarks to the American Red Cross in July of 2009 (National Research Council 2011, 5).

Sustainable public-private collaboration depends on "trust, communication, strong bonds between the public and private sectors, and acceptable returns on investment for all involved" (National Research Council 2011, 7). This is accomplished, according to the NRC, "by a core team of community leaders and then broadened to include other key community stakeholders, as capacity and funding are available to ensure stability and effectiveness" (National Research Council 2011, 7). Because different community sectors and populations are motivated by different factors, the collaborative structure itself will be strongest if it is trusted and perceived as neutral, nonpartisan, and focused on the greater good of the community" (National Research Council 2011, 7).

Education is necessary to establishing partnerships at any level, but even more critical at the local or community level. Clear understanding of the interests of all stakeholders is necessary for any type of negotiation, and are "sustainable if they provide

incentives, value, and rewards to all stakeholders" (National Research Council 2011, 5). In private enterprise, the objective is clear–profit is most important; however, in terms of public-private collaboration where the return on investment is resiliency during a crisis, such as Pandemic Influence, the message is not always clear. The NRC concluded in its study that "private-public collaboration may benefit business by building trusted networks, providing greater knowledge of interdependencies and local critical infrastructure, and improving coordination with other community stakeholders before, during, and after [a pandemic]" (National Research Council 2011, 38). Other benefits of this type of collaboration include community wide identification of capability gaps, enabling more accurate analysis, and minimizing the consequences of disruption. The healthcare costs associated with a Pandemic are estimated to be about eighty billion depending on the success of the interventions, and one hundred billion in Gross Domestic Product losses in the first year, according to the recent NISAC Study (Department of Homeland Security 2007, 4). By strengthening the resilience of individual businesses, the entire community benefits from a more sustainable economy. However, as the NRC study states, "without the shared expectation within a community that resilience-focused private-public collaboration is beneficial for the entire community, community resilience will not be easily created or sustained," hence, the greater need for outreach and education from State and local emergency planners (National Research Council 2011, 5).

Through greater public-private collaboration, local communities can discover untapped resources, and have the potential to solve capacity issues without requesting support from the State and Federal Government. For example, *the 2009 Kansas Pandemic AAR/IP* identified a capability gap for Public Information Officers. This

capability gap was also labeled by the Federal interagency Pandemic Influenza Working Group as a major weakness. Depending on the level of trust and confidence the public sector entity has for the private sector industry, and vice versa, these organizations can engage in a prid pro quo relationship. For example, if county officials engage a local private sector entity and identify a Public Information Officer capable of performing the stressful task of communicating to the public during a pandemic, in turn, the county could assist the private organization in creating a *Pandemic Influenza Continuity of Operations Plan (COOP).* In this particular case, the local community benefits from having a capable Public Information Officer, and the commercial enterprise has a viable plan that will endure the next Pandemic Influenza with greater standing in the community. The same situation can apply to a logistics company that offers consulting services to a public entity responsible for Mass Prophylaxis and the warehousing, storage and distribution of medical supplies. Some private agencies could assist with process improvements in order to improve the efficiency of epidemiological surveillance methods, and companies that provide computer services and hardware could also be solicited to fix automation shortfalls. These are just a few examples, but as the NRC concluded, so long as these companies understand the inderdependencies of private-public partnerships, have an incentive to participate, and trust and confidence is present, these companies will engage.

Since September 11, 2001, there has been a significant increase in the level of interest in community resiliency from the private sector. At the National and regional levels, large corporations like the Target Corporation are taking the lead in this effort. According to Target's CEO, "Our priority is to support community preparedness and crisis response and enhance communication and collaboration among the public and

private sector. By acting together, we can make a stronger impact on communities than we would acting as individual organizations" (Riff 2009, 13). Target Corporation is the fifth largest retailer in the world. It operates stores in 1698 locations in 49 states and its distribution capacity includes: 26 Regional Distribution Centers, 4 Import Warehouses, and 4 Food Distribution Centers. Additionally, Target has a comprehensive global crisis management program to protect business and communities that includes maintaining 22 Command and Control Centers throughout the nation ready to respond. The current H1N1 vaccination availability is unknown, however, Target is willing to partner to utilize their immunization vehicles to protect communities in the following manner:

1. Target Clinics: 30 Clinics
2. Pharmacists ready to deploy: 24 states, 765 locations
3. Third party events: 1588 events in 794 locations
4. 30 Nurses ready to deploy at Distribution Centers (Riff 2009, 11)

In additional to the capacity that the Target Corporation brings to an effective community response to Pandemic Influenza, Target also helps communities prepare for the next pandemic by developing ~~–p~~artnerships with local and national emergency managers, planning and training exercises for team members and communities, supporting National Preparedness Month, and International team member support" (Riff 2009, 6). Target Corporation is an excellent example of how private sector companies are reaching out to the communities they serve in order to build capacity and increase community resiliency for the next pandemic.

More than 85 percent of our nation's resources belong to the private sector. The next Pandemic Influenza will undoubtedly overwhelm the capacity of public sector

resources to effectively respond. The resources belonging to the private sector are virtually untapped for reasons that are not always clear. Some studies suggest that there are divergent interests, that is, the private sector is only motivated by profit. The recommendations by the NRC claim otherwise. Community resiliency is a community issue, of which, private and public sector industries are very much a part. Community leaders must instigate dialogue and educate each community on their interdependencies and shared interests in a more resilient community. The economic impacts of the next pandemic will effect everyone; therefore, even private sector industries have a vested interest in participating in public-private engagements that will last them through the occurence. The next section will look closer at the instruments of power that the Federal, State and local governments can use to provide incentives for private industry to engage in public-private partnerships.

Secondary Question Three

The first section of chapter 4 identified capability gaps in the Federal and State plans. The second section of chapter 4 investigated ways to fill the identified gaps in order to meet the overwhelming demand for resources during Pandemic Influenza. These gaps were either the result of deficiencies in the plan or simply a resource shortfall that exceeded the capacity of the public sector response plan. Since more than eighty-five percent of our Nation‘s resources belong to the private sector, a simple deduction will lead public sector planners in the direction of private industry to fill their capability gaps.

The previous section discussed the need for ―incentives" to solicit private industry support. Incentives can take various forms in laws and regulations, money and tax advantages, prid pro quo or community responsibility. The previous section looked

closely at community responsibility as a mechanism to draw greater support from the private sector, so it will not be discussed in this section. This section will examine the laws and regulations that often deter public-private engagement, and explore incentives that may facilitate these support relationships.

Laws and Regulations

The Federal, State and local government must be cautious to change existing laws. Laws are intended to protect the public, and when the government decides to alter or eliminate laws or regulations, it must be careful not to expose the public to greater risk. There are even greater challenges for legislators and emergency planners working with laws and regulations related to Pandemic Influenza because many of the laws and regulations pertain to healthcare. Secondly, in dealing with public-private partnerships, legislators must be willing to work with private industry and be transparent in their transactions. A big inhibitor of public-private partnerships is lack of trust and confidence. If legislators do not solicit input from the private sector, and are not transparent with their actions, it could be perceived as a backdoor way of enforcing new regulations that might negatively impact their business.

Public-private partnerships could benefit from a law similar to the Good Samaritan Act, but better. Most states have versions of the Good Samaritan Law, but depending which state the law is being invoked, it might have different meanings. In some states, the law only provides coverage to first responders acting within the scope of their trained abilities, but in other states, the law might apply to bystanders acting in good faith (USLegal.com 2011). On May 11, 2010, Governor Rick Scott from the State of Florida introduced a bill in the State Senate calling for additional protections for

businesses that provide support in situations of disaster. This bill is known as the ―Post Disaster Relief Assistance Act,” a type of bill that is commonly classified as a GoodSamaritan law because its intent is to hold people harmless for trying to do a good thing (PolitiFact.com 2011). According to Governor Scott, "Businesses that form public-private partnerships to respond to emergency management needs should be applauded and supported with appropriate legal protections they need to continue serving our communities" (PolitiFact.com 2011). The liability waiver, which is broader than what the Governor had envisioned, expands beyond business owners and includes a few caveats: ―It would not apply to a person who acts in a manner that demonstrates reckless disregard for the consequences of another. It would last only for six months after the declaration of an emergency by the Governor, and it would not apply if the act or aid is unrelated to the original declared emergency” (PolitiFact.com 2011). If the Federal Government is serious about leveraging public-private sector support during an emergency, it might be appropriate to consider a similar bill. However, liability should span throughout the duration of the event, i.e., all six phases of the WHO Pandemic Influenza Phases, or until the contract is terminated. Unless private companies know that the law is in their favor, they might deem the arrangement too risky. Legislation must be enacted in order to protect private companies that decide to commit critical resources in the event of Pandemic Influenza.

The next two areas of reform are critical to establishing sustainable public-private partnerships during a disaster such as Pandemic Influenza. The Freedom of Information Act and Anti-Trust Regulations require changes to improve cross sector collaboration and partnership. Members of critical infrastructure industries repeatedly cite the inability of

the Federal Government to assure them that any sensitive information they supply will not fall into inappropriate hands as a ―significant barrier to information flow" between the public and private sectors. The effect of these private sector concerns is that some valuable information necessary to fully analyze vulnerabilities and risks to critical national interests is not being reported. This will likely remain the case until the government can offer such assurances of protection from disclosure.

According to a GAO report, *Information Sharing–Practices That Can Benefit Critical Infrastructure Protection*, ―the FOIA disclosure exemptions do not provide the necessary levels of assurance to the private sector that its sensitive information will be protected" (Government Accountability Office 2001, 3). Congress needs to ―clarify the exemptions to create indisputable, consistent rules for the non-disclosure of sensitive critical infrastructure protection information" (Government Accountability Office 2001, 3). A testimony by Lynn P. Constantini, Director of Information Technology for the North American Electric Reliability Council before the U.S. House of Representatives Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, offered two recommendations: 1) grant security clearances for personnel involved with critical infrastructure industries; and 2) provide limited anti-trust protection through exemptions.

By granting security clearances for personnel in critical infrastructure industries, information flow between the public and private sectors will remain intact and secure. The owners of critical infrastructure assets require access to more specific threat information and analysis from the public sector in order to develop adequate protection strategies. This may require either more security clearances or treatment of some

information on threat analysis as —sensitive business information," rather than as classified information (US House of Representatives 2002). Furthermore, by providing limited anti-trust exemptions, it will preclude the possibility of anti-trust allegations from inhibiting cross-sector information sharing. The private sector needs to know what information can be shared and the extent to which information can be exchanged without risking anti-trust allegations.

The study conducted by the National Research Council made it very clear that in order for public-private partnerships to flourish, there must be trust and confidence between the organizations. Emergency Management professionals, by nature of their work, have access to classified information not intended for the general public. FOIA can seriously inhibit public-private collaboration when working together to build capacity and community resiliency. Congress needs to re-examine, with the assistance of DHS and HHS, the current FOIA exemptions and Anti-trust Regulations in order to foster an environment of mutual trust and interdependency. Finally, by creating a law similar to the Good Samaritan Act, Congress can decrease eliminate concerns over private sector liability that often inhibit public-private partnerships.

Monetary Incentives

A major criticism of the *National Pandemic Influenza Implementation Plan* was that it lacked information about funding. Similarly, *the 2009 Kansas Pandemic Influenza AAR/IP* cited deficiencies in the ability of KDHE to facilitate their contracting needs during the 2009 Kansas pandemic. Money will always be a challenge, but it should never be a hurdle when it comes to saving lives.

HHS, and more specifically the CDC, provides funding through cooperative agreements to the Public Health Departments of each State for Pandemic Preparedness. The States then have the liberty to disperse funds throughout their States‘ local Public Health Authorities. The *2009 Kansas Pandemic Influenza AAR/IP* noted serious deficiencies in the Epidemiological Reporting, specifically failure of subordinate Health Departments to report their data electronically. This failure was linked to antiquated automation equipment which forced technicians to fill out and submit hard copy data sheets. These failures are a sign that either the State of Kansas is not getting the necessary funds to upgrade their equipment or it is being misued. If these problems persist at the State level, an assumption can be made that local Health Departments are not much better off. The Federal government must start investing now to prepare for the next pandemic.

A key concept of building community resiliency, as cited by National Research Council report, was the importance of public-private partnerships starting at the grassroots level. Funds must be made available to support the establishment of local EOCs to accommodate their private sector partners. As evidenced by FEMA‘s commitment to secure a position in each of their Regional Headquarters for a Private Sector Planner, State and local entities must do the same. By treating their private sector partners as equal stakeholders in the community‘s resiliency, the relationship is likely to be sustained over time. Furthermore, larger corporations that bring sizeable resources during a pandemic should be able to compete for EOC funding on equal footing as their public sector partners. EOCs require significant manpower, equipment and training to effectively employ. Additionally, a portion of the State‘s budget must be allocated to pay for training and per diem for private sector employees participating in training events and

exercises supporting Pandemic Influenza. Private sector employees must be trained and equipped in order to respond effectively.

Companies offering their services to the public in the event of a pandemic must be assured that they will be reimbursed for their services. Clearly, these arrangements must be negotiated ahead of time and coordinated with local public sector emergency planners as part of their original agreement. This requires local public sector Emergency Mangement professionals to know how to capture costs associated with these events, whether training or actual emergency. State officials must be willing to absorb these costs as part of their initial planning process.

More funding from the Federal Government is required to improve the level of efficiency of the State and local Pandemic Influenza responders and to set conditions to build future public-private partnerships. Antiquated equipment and failure to employ standardized methods of reporting can seriously impact the allocation of resources and risk lives unnecessarily. In order for public-private sector relationships to flourish, private sector industries must have the confidence that they will receive compensation for their services. Additonally, the State and local governments must invest in training their private sector partners through planning exercises to full scale exercises. Only when the public sector partners are treated as equal stakeholders in this fight against the next pandemic will they be willing to commit their resources.

Summary

Chapter 4 identified capability gaps by evaluating the existing plans at the Federal and State levels. Additional reports and assessments of these plans were also cited to show inconsistencies and disparities between the plans. Once the gaps were identified at

the Federal and State levels, a linkage was drawn to resources from the private sector. Attention was also paid to how these public-private relationships are built through mutually shared interests in community resiliency and trust. This is a critical concept as the public sector develops its strategies to engage private sector industries. With over eighty percent of the Nation‘s resources coming from the private sector, our government simply cannot respond effectively to a pandemic without private sector support. Chapter 5 will bring the ideas of this thesis together in a convincing way that will answer the question, how do we leverage private sector support in the event of Pandemic Influenza?

CHAPTER 5

RECOMMENDATIONS

> The ideas, values, energy, creativity, and resilience of our citizens are America‘s greatest resource. We will support the development of prepared, vigilant, and engaged communities and underscore that our citizens are the heart of a resilient country. And we must tap the ingenuity outside government through strategic partnerships with the private sector, nongovernmental organizations, foundations, and community-based organizations. Such partnerships are critical to U.S. success at home and abroad, and we will support them through enhanced opportunities for engagement, coordination, transparency, and information sharing. (The White House 2010a, 16)

This research is based upon the evaluation of existing strategies and plans at the Federal, State and local levels. If a pandemic were to occur tomorrow, these documents would establish the framework and guide the collective response of Federal, State and local authorities. Close analysis of these strategies and plans shows that there exist significant planning gaps and resource shortfalls to effectively respond to Pandemic Influenza. This thesis exposed the planning gaps in strategies and plans endorsed by the Federal, State and local governments, and attempted to link these gaps to potential solutions achieved only through public-private sector partnerships.

This research showed that Federal plans must prioritize requirements, provide States with more technical and procedural guidance in certain critical areas, and clarify funding sources. The State of Kansas must ensure that its planning documents and response plans are congruent with Federal pandemic plans. Several studies and evaluations conducted by the GAO and the Federal interagency Pandemic Working Group exposed disparities between these plans. Since over eighty-five percent of infrastructure exists within the private sector, it would seem logical to solicit private

sector support through public-private partnerships. However, at this time no overarching framework exists to guide the establishment of these relationships.

Primary Research Question

How can Federal, State and local governments leverage public-private partnerships to respond to the next Pandemic Influenza in the State of Kansas? First and foremost, the Federal government should develop official standards and guidelines for public-private partnerships. At present, these relationships are considered ad hoc with no oversight from the Federal or State Government. In most cases, it is the public entity that absorbs all the costs related to these agreements and is held liable when things go wrong. A new Federal policy should focus on shared accountability for both the public and private sector organization and detail funding information to assure reimbursement for both partners. Finally, as the National Research Council's study indicated, community resiliency achieved through public-private partnerships is better organized and sustained at the "grass-roots" level. Therefore, any new Federal policy should take into account the needs and concerns of all stakeholders. Policy developers will tread a fine line between doing what's in the best interest of the public and imposing too much regulation that could drive the private sector away.

The greatest criticism coming out of the GAO's report on Pandemic Influenza Preparedness centered on prioritization of programs and activities and funding issues. Preparing for and responding to Pandemic Influenza is extremely resource intensive. State and local communities must understand the priorities and funding limitations in order fully comprehend their requirements and match resources against them. The public health community is asking the Federal Government to include more information on

medical terminology (Pandemic Influenza versus Influenza) that will facilitate triage, more information on social distancing (i.e., school closures) and universal method of Epidemiological Surveillance. Failure to address these issues in response plans or fund programs will translate into an insufficient response at the State and local levels.

A nationwide effort must be started to educate and empower community leaders to motivate local industries to assist their community's resiliency to Pandemic Influenza. As the Secretary of Homeland Security stated, "building a resilient nation doesn't come from a top-down, government-only . . . it comes from a bottom-up approach" (National Research Council 2011, 5). As the NRC study indicated, a resilient community must have a shared sense of responsibility from its stakeholders in order for it to be effective and endure over time. State Governments must budget for training and exercise support for local communities that fully incorporate their private sector partners. Private sector leadership must feel as though they are equal partners with their public sector counterparts; therefore, funding to support training, exercises and equipment comparable to their public sector counterparts is absolutely necessary.

Professional organizations such as the Small Business Association, the American Bar Association, and the American Hospital Association are excellent resources to leverage facilitate public-private partnerships. Not only are these organizations a great way to gain access to local industry leaders, but they provide a collective voice when it comes to voicing concerns. Many large corporations, such as Target Corporation, are actively engaged in planning and preparing for the next pandemic. Not only do they provide increased capacity in multiple areas, they also provide an excellent model for

private industries that are serious about improving their community‘s resiliency to the next pandemic.

Finally, legislative reform in areas such as liability, information sharing and anti-trust is necessary in order to ease the way for public-private engagements. These legal areas can seriously inhibit the fomenting of public-private sector partnerships. A Good Samaritan-like Act should be drafted by the Federal Government to protect private industries engaged in public-private partnerships for disastrous events such as Pandemic Influenza. If a private organization determines that the risks due to liability are too great, they will most certainly turn away from a deal. Clearly, criminal behavior and gross negligence would not apply to this law, but private industries acting in good faith to provide an essential service during a disaster should feel confident that the government supports them.

The Freedom of Information Act (FOIA) can block information sharing between the public and private sectors. Risk Analysis and Vulnerability Analysis normally contain information that is considered classified and not meant for public consumption. This can be tricky if a public sector entity is developing a complete assessment that crosses over from public to private sector control. Sensitive information obtained through public sector sources can provide a private sector industry an unfair advantage over their competition, which leads into the need for Anti-Trust reform. But in order for public-private sector relationships to work effectively, there must be transparency. Legislation should be introduced to modify FOIA and Anti-Trust in order to facilitate public-private relationships.

Secondary Research Question One

What resource shortfalls or capability gaps might we find at each level of government during a pandemic influenza outbreak? Pandemic Influenza plans of the Federal Government and the State of Kansas showed inconsistencies in both content and structure, lacked prioritization of programs and activities, and omitted much needed funding guidance. The studies and assessments conducted to determine the State's readiness to respond to Pandemic Influenza showed many disparities between levels of Federal and State Pandemic Influenza responses. Logically, each State and local community will tailor their response plans to address unique challenges within their state, but the findings of the Federal interagency Pandemic Influenza Working showed that the Kansas response plan contained Major Gaps in Sustain/Support Critical Infrastructure. It is conceivable that since the *Kansas Pandemic Influenza Preparedness and Response Plan* is modeled after the WHO Pandemic Phases and not the *National Strategy for Pandemic Influenza Implementation Plan* that major inconsistencies exist. But regardless of how a plan is structured, there is no excuse for missing major content areas, such as Sustain/Support Critical Infrastructure.

The Federal Government must prioritize its programs and activities in its guidance to states for Pandemic Influenza. Lack of prioritization prevents States from properly allocating their resources and precludes them from fully comprehending their shortfalls. Finally, Federal Government plans do not address how these programs or activities will be funded. The collective impact of these challenges coupled with the lack of funding makes planning at the State and local levels extremely difficult.

Secondary Research Question Two

Which private sector industries could be enlisted to provide critical resources during Pandemic Influenza? The best way to address this question is by referring to the National Research Council's (NRC) study on community resiliency. The main argument of this study showed that the best public-private sector partnerships are built from bottom-up. Not every State and locality will have the same resource constraints. Certain demographic challenges can impede access to industry resources, thus preventing a State or community from building enough capacity to respond effectively to Pandemic Influenza. Establishing public-private sector partnerships must start from the community level in order to address the specific challenges of their community. Public-private sector engagements that are built on trust and welcome transparency are most effective at identifying all the risks and vulnerabilities of a particular community. These relationships are more sustainable over time than top-down, government mandated relationships from either the Federal or State Government.

Professional organizations, as the 2009 *Kansas Pandemic AAR/IP* cited, create opportunities for private sector engagement and can assist with building stronger bonds with community leaders. These private professional organizations normally include a form of internal governance that acts as a collective voice for its members. Community leaders can leverage these professional organizations too in order to build capacity through public-private sector partnership. As the NRC determined, only through shared responsibility, trust, and transparency between stakeholders will these relationships sustain over time. Finally, these partnerships can only last with proper investment. Training, exercise and equipment cost money. The Federal and State Governments must

budget for these programs and activities. If the private sector partner does not feel as though they are being treated as equal partners, it will likely cause harm to the relationship or turn them away altogether.

Secondary Research Question Three

What types of incentives, or instruments of power might the government use in order to establish public-private partnerships in the event of a Pandemic Influenza? The solution to this problem is two-fold: (1) legal reform; and (2) money. Legislation reform addressing liability issues, information sharing and anti-trust issues must be drafted. Liability issues often drive private sector companies away from engaging in partnerships with the public sector. Clearly if the risks of lawsuits outweigh the rewards of participating in a partnership, the private industry will not engage. Therefore, a new law similar to the Good Samaritan Act should be drafted to protect private organizations willing to engage in public sector partnerships.

The Freedom of Information Act (FOIA) and anti-trust laws must also be reformed in order to permit information sharing between public and private sector partners. As the law stands now, much of the information pertaining to risk and vulnerability analysis is considered classified. Either the laws need to be changed in order to accommodate information sharing between the two sectors, or the information itself needs to be classified. Granting private sector employees special security clearances might also alleviate this problem. The Federal Government must address this problem and pass the necessary legislation to make these laws universally accepted. Although legal and regulatory reform is necessary to facilitate these relationships, legislators and policymakers must carefully balance necessary reform with what might appear to be too

regulatory in nature. A primary concern of the private sector is overregulation. Laws that are not carefully worded might be perceived as a backdoor method of enforcing more regulation. This perception can also drive private sector organizations away from partnering with the public sector.

Secondly, funds must be set aside and budgeted to facilitate public-private partnerships. Funding for training, exercise support and equipment at comparable to public sector levels should be allocated for private industries participating in these partnerships. After all, if private industry is to assume a shared responsibility for community resilience, they must be assured that they will have the necessary training and supplies to effectively prepare for and respond to a pandemic. Reimbursement for private sector support is often a great concern for both public and private sector partners. History has proven over time during crisis that much of the funds are often not available from the Federal Government until a disaster declaration has been declared by the President. Private industry must have assurance that their services will be reimbursed. The Federal, State Governments must closely examine the laws and policies that direct the payment of these funds to better facilitate public-private partnerships during the inter-pandemic period for activities such as training and exercises and during the response period for services provided. Release of funds after an outbreak has been declared can delay response actions when time is critical to contain the virus.

Suggestions for Further Research

Focus research on cultural differences between public and private sector organizations that may inhibit private participation in public-private sector partnerships. The NRC study cited that there were some cultural differences between public and

private organizations that deter engagements from either sector. Some public sector organizations avoid engaging the private sector because of the perception that the private sector is only concerned about profit and are unreliable during a disaster. Conversely, some private sector organizations evade public-private sector engagements because they do not want to get caught up in the web of bureaucracy that often comes with working with public sector organizations. Research focused on how these cultural barriers can be broken down or eliminated would be beneficial to community leaders and emergency managers who are trying to establish public-private sector partnerships.

Focus research on community leadership and their role in bridging the gap between public and private sector interests. One of the primary findings of the NRC report cited the requirement for public-private sector partnerships to start at the community level through a bottom-up approach. Investigation into the quality and preparation for community leaders, especially in rural areas, would be especially helpful to understand. Perhaps resources could be used to better prepare local community leaders and give them the tools necessary to facilitate public-private sector relationships. Local leaders must understand the necessity of these engagements. They must also be equipped with the knowledge and understanding that will enable them to break down barriers and bridge the gap between public and private sector organizations for the good of the community.

A closer look at plans development at the local community level is necessary in order to better understand the process and ensure that these plans are integrated with State and Federal Emergency Operations Plans (EOP) and polices. Questions like: (1) who is responsible for developing the plan? (2) Does the plan acknowledge capability gaps and

have viable solutions that balance the resources of the community? (3) Does the plan synchronize with the actions of State and Federal authorities? Answers to these questions can be beneficial for emergency planners at all levels to ensure compliance with State and Federal plans and ensure a comprehensive, well-coordinated response to a disaster.

Recommendations

It is clear that the Federal Government acknowledges the challenges of developing comprehensive, well integrated and mutually supportive response plans to address the complexities of Pandemic Influenza. The interagency working groups and reports generated by the GAO and NRC are excellent methods of defining the problem and step in the right direction. However, if the Federal Government does not apply the necessary resources to fixing the problem, the next pandemic could generate more casualties than the 1918 Pandemic Influenza (over 50 million lives).

The Federal and State Governments should develop interagency Pandemic Influenza Task Forces to start fixing capability gaps. Task forces should include representatives from the private sector to ensure their unique concerns are addressed. These task forces should focus on scrutinizing plans to uncover resource shortfalls and develop potential solutions. The Federal Government should revise its plan to address prioritization of programs and activities, funding sources, and clarify procedural guidance related to social distancing and epidemiological surveillance. Correspondingly, State task forces should ensure that their plans are well integrated with Federal plans and all content areas are addressed. State Task Forces should inspect local plans to ensure compliance and synchronization with Federal and State response activities.

Together, State task forces will work to build or strengthen leadership capacity in at the community level. Resources must be applied to building community resiliency by leveraging the resources of all stakeholders, including the private sector. Local leadership must be willing to break down barriers and provide the necessary incentives to foster a sustainable public-private partnership. It is the responsibility of the Federal and State governments to fund programs designed to increase community awareness and provide for training and special equipment needs. The Federal and State task forces will work together to develop the framework and assign responsibility for these programs and activities. Local community representatives should be involved during each step of this process to ensure their unique circumstances are addressed. State task forces should leverage the influence of professional organizations. Professional organizations provide access to local industries, opportunities for community engagement and provide a collective voice for concerns.

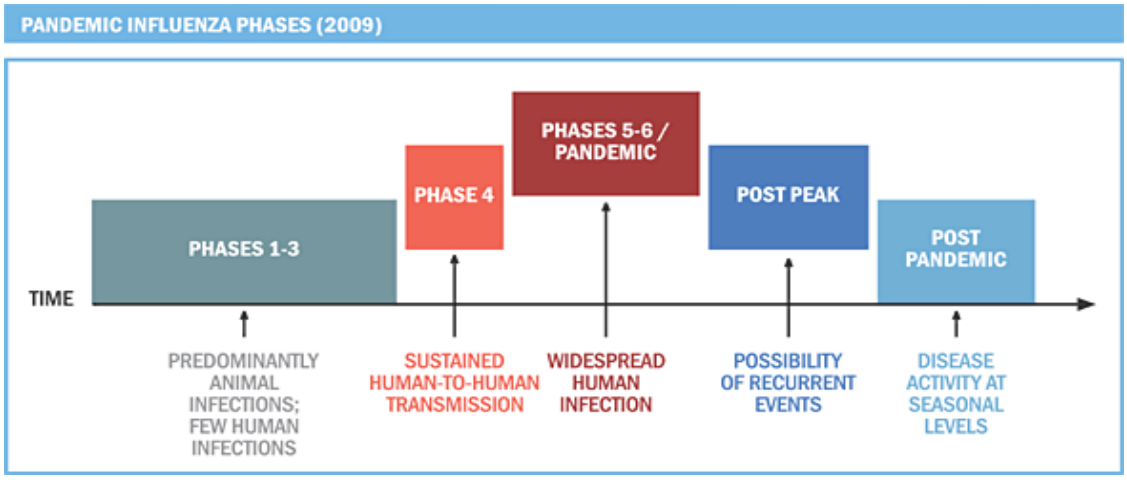
Federal and State Pandemic Influenza Task Forces should work together to push legislation to reform laws and revise regulations to better facilitate public-private partnerships. Topics such as liability, information sharing and anti-trust should be discussed in order to formulate a consensus among Federal, State and local community representatives. Pushing new legislation is a significant hurdle; however, coming up with the funds necessary to foment these partnerships are another hurdle. Compensation must be timely and commensurate with the services provided. Funds must be made available throughout the pandemic period, including the inter-pandemic period for education, training and special equipment. Failure to provide sufficient compensation could cause

companies to go out of business, thus increasing the economic damages of Pandemic Influenza.

Finally, Federal and State Pandemic Influenza Task Forces should work together to develop an overarching framework for public-private partnerships. State task forces would bring the State and local community interests to the discussion and the Federal Government draft a document that could be applied nationally. A document generated at the Federal level is necessary, because these activities have the potential to cross State lines, particularly at population centers along State borders. This overarching Pandemic Influenza Framework would address the majority of the planning gaps cited in this thesis. The foundation of this framework would be focused on building community resiliency whereby all stakeholders, both public and private, understand their responsibilities within the context of the law. Finally, this framework would provide funding information which always seems to be a major issue for profit and non-profit organizations.

Pandemic Influenza will undoubtedly overwhelm our nation‘s public resources within days of confirmation. With over eighty percent of our nation‘s resources belonging to the private sector, it makes sense to solicit private sector support in the event of Pandemic Influenza. Public-private sector partnerships provide a practicable solution to building capacity and providing the resources necessary to respond. The Federal, State and local governments, alongside their private sector counterparts, have the capacity to make change and set the conditions for public-private partnerships to flourish.

ILLUSTRATION



Six WHO Pandemic Phases

Interpandemic period
Phase 1: There have been no new influenza virus subtypes detected in humans that would signal the conditions required for a pandemic. Based on past evidence, the influenza viruses detected in animals are considered to be of low risk to humans.

Phase 2: There have been no new influenza virus subtypes detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease. This assessment is based on various factors, such as past history of a similar strain causing serious illness in humans and the extent of the outbreaks in animals.

Pandemic alert period
Phase 3: A new influenza virus subtype is detected in humans. There may be rare instances of an infected individual spreading the virus to other individuals they have been in close contact with, but in general, there is no evidence of the virus spreading easily among humans.

Phase 4: Small clusters of human-to-human spread of the virus are reported. But outbreaks are localized, which suggests that the virus does not spread easily to and among humans.

Phase 5: One or more larger clusters are reported, but human-to-human spread is still localized, which suggests that the virus is becoming increasingly capable of infecting humans, but may not be fully transmissible (there is a substantial pandemic risk).

Pandemic period
Phase 6: The virus is easily transmitted to and among humans, resulting in increased and sustained spread of the virus in the general population.

GLOSSARY

Biosurveillance: "The term "biosurveillance" means the process of active data-gathering with appropriate analysis and interpretation of biosphere data that might relate to disease activity and threats to human or animal health–whether infectious, toxic, metabolic, or otherwise, and regardless of intentional or natural origin–in order to achieve early warning of health threats, early detection of health events, and overall situational awareness of disease activity." (*Guide to Emergency Management Terms* 2008, 39)

Capabilities-Based Planning: "This planning approach focuses on available personnel and resources that can be applied to address significant incidents. Requirements and capabilities are derived from the National Planning Scenarios, the National Homeland Security Plan, strategic planning, risk assessments, concepts of operations, and threat information. This capability based planning approach and the National Preparedness Guidelines foster vertical and horizontal integration of Federal, State, local, and Tribal plans allowing State, local and Tribal capability assessments to inform Federal requirements and capabilities planning." (*Guide to Emergency Management Terms* 2008, 56)

Capacity: "A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability." (*Guide to Emergency Management Terms* 2008, 59)

Centers for Public Health Preparedness (CPHP): "The CDC-funded Centers for Public Health Preparedness (CPHP) is a national network of academic institutions working in collaboration with state and local public health departments and other community partners to provide life-long learning opportunities to the public health workforce, in order to handle the next public health crisis." (*Guide to Emergency Management Terms* 2008, 85)

Comprehensive Emergency Management (CEM): "Comprehensive Emergency Management Programs provide a complete approach for dealing with disruptions in both the public and the private sector. While the term is not widely understood, it represents the umbrella which covers emergency management, business continuity, and disaster recovery." (*Guide to Emergency Management Terms* 2008, 122)

Department of Health and Human Services (DHHS): "DHHS assistance supports threat assessment, DEST deployment, epidemiological investigation, LFA advisory requirements, and technical advice. Technical assistance to the FBI may include identification of agents, sample collection and analysis, on-site safety and

protection activities, and medical management planning. DHHS serves as a support agency to the FBI for technical operations, and a support agency to DHS/FEMA for CM. DHHS provides technical personnel and supporting equipment to the LFA during all aspects of an incident. DHHS can also provide regulatory follow-up when an incident involves a product regulated by the Food and Drug Administration. Operational support to DHS/FEMA may include mass immunization, mass prophylaxis, and mass fatality management, pharmaceutical support operations (Strategic National Stockpile), contingency medical records, patient tracking, and patient evacuation and definitive medical care provided through the National Disaster Medical System." (*Guide to Emergency Management Terms* 2008, 192)

Emergency Management: "Definition: the coordination and integration of all activities necessary to build, sustain and improve the capabilities to prepare for, respond to, recover from, or mitigate against threatened or actual disasters or emergencies, regardless of cause. Extended Definition: emergency management activities in response to an incident are a component of overall incident management and are aligned with parallel response processes associated with prevention and protection. Annotation: The body of knowledge with respect to comprehensive emergency management includes the concept of emergency management "programs." These "programs" are comprised of functional areas including operations and procedures, hazard and risk identification, plans and procedures (strategic plans, operational plans, recovery plans), hazard mitigation, public information and public education, finance and administration, etc." (*Guide to Emergency Management Terms* 2008, 307)

Emergency Management Performance Grants, Fiscal Year 2009 Request: "The EMPG request of $200 million helps states and urban areas achieve target levels of capability to sustain and enhance the effectiveness of their emergency management programs. The EMPG Program provides critical planning and staffing assistance to sustain and enhance state and local emergency management capabilities (*Guide to Emergency Management Terms* 2008, 311)

Emergency Operations Plan (EOP): "An all-hazards document that specifies actions to be taken in the event of an emergency or disaster event; identifies authorities, relationships, and the actions to be taken by whom, what, when, and where, based on predetermined assumptions, objectives, and existing capabilities." (*Guide to Emergency Management Terms* 2008, 319)

Emergency Preparedness: "The term _emergency preparedness' means all those activities and measures designed or undertaken to prepare for or minimize the effects of a hazard upon the civilian population, to deal with the immediate emergency conditions which would be created by the hazard, and to effectuate emergency repairs to, or the emergency restoration of, vital utilities and facilities destroyed or damaged by the hazard." (*Guide to Emergency Management Terms* 2008, 327)

Gap Analysis: ―An analysis which identifies the differences between what an organization has previously identified as its needs or requirements during an emergency or incident, and what will actually be available.‖ (*Guide to Emergency Management Terms* 2008, 454)

Hazard and Vulnerability Analysis (HVA): ―A study that identifies possible hazards and the susceptibility of an organization to the hazard impact. The HVA provides guidance for mitigation and preparedness plans in an emergency management program.‖ (*Guide to Emergency Management Terms* 2008, 480)

Hazard Mitigation: ―The ability to control, collect, and contain a hazard; lessen its effects; and conduct environmental monitoring–mitigation efforts may be implemented before, during, or after an incident.‖ (*Guide to Emergency Management Terms* 2008, 480)

HLS Homeland Security: ―Homeland Security is a concerted national effort to prevent and disrupt terrorist attacks, protect against man-made and natural hazards, and respond to and recover from incidents that do occur.‖ (*Guide to Emergency Management Terms* 2008, 488)

Incident Command System (ICS): A standardized on-scene emergency management concept specifically designed to allow its users to adopt an integrated organizational structure equal to the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries.‖ (*Guide to Emergency Management Terms* 2008, 433)

Infectious Disease: ―The term `infectious disease' means a disease potentially caused by a pathogenic organism (including a bacteria, virus, fungus, or parasite) that is acquired by a person and that reproduces in that person.‖ (*Guide to Emergency Management Terms* 2008, 552)

Influenza A H1N1: (also called ―Swine Flu‖) ―virus is a subtype of influenza A virus and was the most common cause of human influenza (flu) in 2009. Some strains of H1N1 are endemic in humans and cause a small fraction of all influenza-like illness and a small fraction of all seasonal influenza. H1N1 strains caused a few percent of all human flu infections in 2004–2005.‖ (Wikipedia: H1N1 2011)

Influenza A H5N1: (also called ―Avian Flu‖ or ―Bird Flu‖) ―influenza caused by viruses adapted to birds. Of the greatest concern is highly pathogenic avian influenza (HPAI). All known viruses that cause influenza in birds belong to the species influenza A virus. All subtypes (but not all strains of all subtypes) of influenza A virus are adapted to birds, which is why for many purposes avian flu virus is the influenza A virus.‖ (Wikipedia 2011a)

Isolation: ―Definition: Isolation refers to the separation of persons who have a specific infectious illness from those who are healthy and the restriction of their movement to stop the spread of that illness. Isolation allows for the focused

delivery of specialized health care to people who are ill, and it protects healthy people from getting sick. In sum, isolation is for treatment of a known illness and quarantine is for observation of possible exposure to an agent." (*Guide to Emergency Management Terms* 2008, 579)

Mass Casualty Event: "…a catastrophic public health or terrorism-related event, such as Influenza pandemic or the detonation of improvised nuclear devices, the resulting tens of thousands of victims will be likely to overwhelm the resources of a community's health care system." (*Guide to Emergency Management Terms* 2008, 615)

Medical Surge: "Medical Surge is defined as rapid expansion of the capacity of the existing healthcare system in response to an event that results in increased need of personnel (clinical and non-clinical), support functions (laboratories and radiological), physical space (beds, alternate care facilities) and logistical support (clinical and non-clinical equipment and supplies)." (*Guide to Emergency Management Terms* 2008, 621)

Mitigation: "Mitigation means sustained action taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Mitigation distinguishes actions that have a long-term impact from those that are more closely associated with preparedness for, immediate response to, and short-term recovery from a specific event." (*Guide to Emergency Management Terms* 2008, 635)

National Bioterrorism Hospital Preparedness Program (NBHPP): "is to prepare hospitals and supporting healthcare systems, in collaboration with other partners, to deliver coordinated and effective care to victims of terrorism and other public health emergencies. Cooperativeagreement funds may be used for activities that include increasing surge capacity, which encompasses beds, personnel, pharmaceuticals, PPE, decontamination capacity, isolation capacity and interoperable communications, as well as the enhancement of EMS services, competency based training, and exercises." (DHS/ODP, FY 2006 EMPG, 2005, 11)

National Center for Preparedness, Detection, Control of Infectious Diseases (NCPDCID) CDC: "The…NCPDCID protects populations domestically and internationally through leadership, partnerships, epidemiologic and laboratory studies, and the use of quality systems, standards, and practices. NCPDCID collaborates with the Coordinating Center for Infectious Diseases (CCID), CDC, and the agency's national and global partners to conduct, coordinate, and support infectious disease surveillance, research, and prevention. Each of the center's six divisions complements this cross-cutting mission, working with internal and external partners to improve public health." (*Guide to Emergency Management Terms* 2008, 659)

National Disaster Medical System (NDMS), HHS: "The National Disaster Medical System (NDMS) is a federally coordinated system that augments the Nation's medical response capability. The overall purpose of the NDMS is to establish a single integrated National medical response capability for assisting State and local authorities in dealing with the medical impacts of major peacetime disasters and to provide support to the military and the Department of Veterans Affairs medical systems in caring for casualties evacuated back to the U.S. from overseas armed conventional conflicts. (*Guide to Emergency Management Terms* 2008, 666)

National Incident Management System (NIMS): "The National Incident Management System (NIMS) provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment." (Department of Homeland Security 2011a)

Presidential Directive 5: "This system will provide a consistent nationwide approach for Federal, State, and local governments to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among Federal, State, and local capabilities, the NIMS will include a core set of concepts, principles, terminology, and technologies covering the incident command system; multi-agency coordination systems; unified command; training; identification and management of resources (including systems for classifying types of resources); qualifications and certification; and the collection, tracking, and reporting of incident information and incident resources." (*Guide to Emergency Management Terms* 2008, 510)

National Logistics Coordinator Concept: "This concept allows FEMA to tap into the resources of its partners, minimizing the need for FEMA to maintain large inventory levels of its own and thus minimizes the need to dispose of excess supplies." (*Guide to Emergency Management Terms* 2008, 702)

National Planning Scenarios (15): "The Federal interagency community has developed 15 all hazards planning scenarios (the National Planning Scenarios or Scenarios) for use in national, Federal, State, and local Homeland Security preparedness activities. The Scenarios are planning tools and are representative of the range of potential terrorist attacks and natural disasters and the related impacts that face our nation. The objective was to develop a minimum number of credible scenarios in order to establish the range of response requirements to facilitate preparedness planning." (*Guide to Emergency Management Terms* 2008, 709)

National Response Framework (NRF) (formerly the National Response Plan): "The purpose of the National Response Framework is to establish a comprehensive, national, all-hazards approach to domestic incident response. The Framework

presents an overview of key response principles, roles and structures that guide the national response. It describes how communities, States, the Federal Government and private sector and nongovernmental partners apply these principles for a coordinated, effective national response. And, it describes special circumstances where the Federal Government exercises a larger role, including incidents where Federal interests are involved and catastrophic incidents where a State would require significant support." (*Guide to Emergency Management Terms* 2008, 720)

National Strategy for Pandemic Influenza (NSPI): "The National Strategy for Pandemic Influenza guides our preparedness and response to an influenza pandemic, with the intent of (1) stopping, slowing or otherwise limiting the spread of a pandemic to the United States; (2) limiting the domestic spread of a pandemic and mitigating disease, suffering and death; and (3) sustaining infrastructure and mitigating impact to the economy and the functioning of society." (*Guide to Emergency Management Terms* 2008, 741)

Pandemic Influenza: "Pandemic (from the Greek, meaning "of all of the people") Influenza has the potential to pose a far greater threat to global health. It typically is a novel human flu that causes a worldwide outbreak of serious illness and death. Because there is little natural immunity, the disease can easily spread from person to person, one of the key characteristics that define a pandemic. There have been at least 10 recorded flu pandemics during the past 300 years." (*Guide to Emergency Management Terms* 2008, 792)

Pandemic Influenza Containment Strategy: "Containment attempts would require stringent infection-control measures such as bans on large public gatherings, isolation of symptomatic individuals, prophylaxis of the entire community with antiviral drugs, and various forms of movement restrictions—possibly even including a quarantine…if a containment attempt is to have a chance of succeeding, the response must employ the assets of multiple partners in a well coordinated way." (*Guide to Emergency Management Terms* 2008, 792)

Quarantine: "Definition prohibition or restriction on travel or passage, imposed to keep contagious diseases, or harmful chemicals/biologicals from spreading. Quarantine is not the same as isolation. Isolation refers to the separation of persons who have a specific infectious illness from those who are healthy and the restriction of their movement to stop the spread of that illness. Isolation allows for the focused delivery of specialized health care to people who are ill, and it protects healthy people from getting sick. In sum, isolation is for treatment of a known illness and quarantine is for observation of possible exposure to an agent." (*Guide to Emergency Management Terms* 2008, 888)

Stafford Act: "Federal support to State and local jurisdictions takes many forms. The most widely known authority under which assistance is provided for major incidents is the Stafford Act. When it is clear that State or tribal capabilities will

be exceeded or may be exhausted, the Governor can request Federal assistance under the Stafford Act. The Stafford Act authorizes the President to provide financial and other forms of assistance to State and local governments, certain private nonprofit organizations and individuals to support response, recovery and mitigation efforts following Presidentially-declared major disasters and emergencies. Most incidents are not of sufficient magnitude to merit a Presidential emergency or major disaster declaration. However, when State and local resources are insufficient, a Governor may ask the President to declare a Federal disaster or emergency." (*Guide to Emergency Management Terms* 2008, 959)

Strategic National Stockpile (SNS): "CDC's Strategic National Stockpile (SNS) has large quantities of medicine and medical supplies to protect the American public if there is a public health emergency (terrorist attack, flu outbreak, earthquake) severe enough to cause local supplies to run out. Once Federal and local authorities agree that the SNS is needed, medicines will be delivered to any State in the U.S. within 12 hours. Each State has plans to receive and distribute SNS medicine and medical supplies to local communities as quickly as possible….The medicine in the SNS is FREE for everyone. The SNS has stockpiled enough medicine to protect people in several large cities at the same time. Federal, State and local community planners are working together to ensure that the SNS medicines will be delivered to the affected area to protect you and your family if there is a terrorist attack." (*Guide to Emergency Management Terms* 2008, 1006)

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